The State of Health

Houston / Harris County

2012

The State of Health of Houston/Harris County 2012
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Harris County Public Health and Environmental Services

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Harris County Hospital District

Mental Health and Mental Retardation Authority of Harris County

St. Luke's Episcopal Health Charities

Harris County Pollution Control

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The State of Health in Houston/Harris County

2012

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

- 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
- health care 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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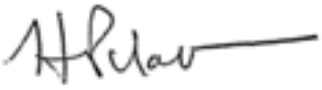

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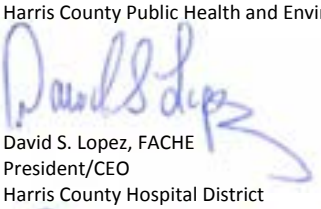

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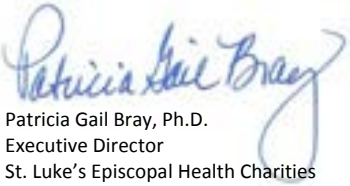

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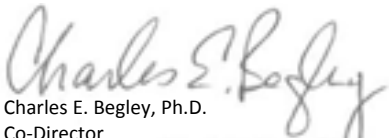

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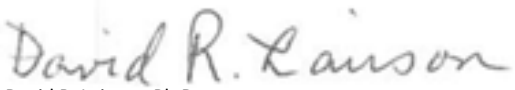

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Acknowledgments

Welcome to the 2012 State of Health in Houston/Harris County report. The first report began in 2005 when Stephen L. Williams, Director, Houston Department of Health and Human Services (HDHHS), and Dr. Herminia Palacio, Executive Director, Harris County Public Health and Environmental Services (HCPHES), created a joint State of Health report for the City and County, patterned after the HCPHES Annual Report.

Since that time, additional organizations including the Harris County Healthcare Alliance (HCHA), the Mental Health and Mental Retardation Authority of Harris County (MHMRA), the Harris County Hospital District (HCHD), St. Luke's Episcopal Health Charities (SLEHC), The University of Texas School of Public Health (UTSPH), and the Harris County Pollution Control Services Department (HCPCS), have joined the list of supporting organizations and have loaned members of their staff to participate in the State of Health Workgroup and contribute content for the report. These individuals and organizations have collaborated to provide our many constituencies with a broad assessment of the health of our community.

With this report, we are pleased to incorporate findings from Dr. Stephen Linder's Health of Houston Survey 2010 to amplify the health measures with additional context gained from household survey results. That full report can be found at www.hhs2010.net.

We are also particularly grateful to Dr. Beverly Nichols, Senior Staff Analyst, with HDHHS' Office of Health Planning, Evaluation and Program Development, for serving as Editor-in-Chief to assure that the final report is both cohesive and comprehensive. She is also Editor for the State of Health website, which hosts this document and related materials. The website is available at www.houstonstateofhealth.org.

Our thanks to HCHA for financial sponsorship and Karen Love during her time as Executive Director of HCHA for editorial guidance, promotion of the State of Health documents, and development of the website. In addition, thanks to Interim Director Olivia Dear, who has moved the project forward more recently.

We hope that this report assists your planning and decision-making activities, as well as efforts to address health-related concerns in our community.

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Introduction

The State of Health of Houston/Harris County focuses on the well being of the 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 50 health topics. Where possible, each section reports on **Trends**, **Population Differences**, **Geographic Distribution**, **Economic Impact**, **Healthy People 2020** and **Public Health Actions**.

Trends reflects the direction of the health issue over a specified period of time using statistics frequently taken from the Behavioral 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. BRFSS also provides some measures at the county level. 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 2020, developed by the U.S. Department of Health and Human Services, uses leading health indicators to measure the health of the nation and set goals for the next 10 years. The Leading Health Indicators are: Access to Care, Healthy Behaviors, Chronic Disease, Environmental Determinants, Social Determinants, Injury, Mental Health, Maternal and Infant Health, Responsible Sexual Behavior, Substance Abuse, Tobacco, and Quality of Care. Each of the 12 Leading Health Indicators has one or more objectives. The Leading Health Indicators were chosen to reflect the major health concerns in the United States at the beginning of the 21st century. More information is available at www.healthypeople.gov/. The Healthy People 2020 section of each chapter compares local measures to the national benchmarks and goals.

Public Health Actions lists the actions 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. Readers are directed to governmental and advocacy websites for further inquiry under **For More Information**.

Much of the data presented is collected at the county level—that is, there is no distinction made between the jurisdictions of Houston and Harris County when the data are 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 important differences in health data are 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.

This report uses many acronyms. Please see the **Appendices** for definitions.

Previous and current editions of this document are available on the website for download at www.houstonstateofhealth.org. In addition, the website provides links to related documents and other pertinent information.

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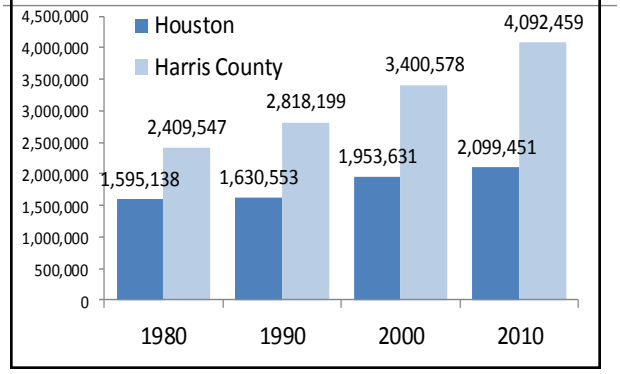
Population Facts

Demographics

Harris County is the third most populous county in the United States, with an estimated 4.1 million residents in 2010, according to the U.S. Census Bureau. Of those, approximately 2.1 million (51%) 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. The county population doubled during the years from 1970 to 2000 and increased by 20.3% from 2000 to 2010. Growth was more rapid in the suburbs; the City of Houston population increased by a lesser amount, 7.5% during 2000-2010.

Total Population of the City of Houston Compared to Harris County 1980-2010

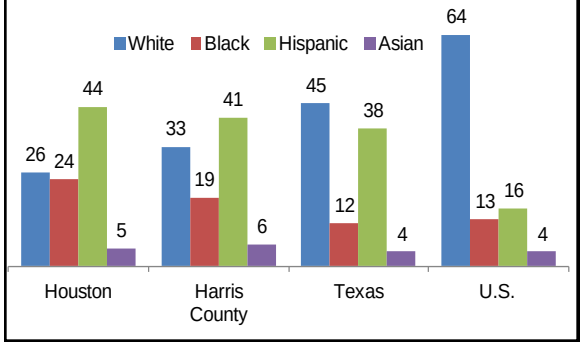


Source: U.S. Census Bureau

Houston's population density in 2010 exceeded that of Harris County, according to the U.S. Census Bureau. Houston included 579 square miles of land area and had 3626.0 persons per square mile. Harris County (including the City of Houston) is 1,729 square miles with 2,367.0 persons per square mile in 2010. By contrast, New York City included 303 square miles with 26,980.6 persons per square mile in 2010.

Photo courtesy of U.S. Census Bureau

Race and Ethnicity in Houston, Harris County, Texas and the U.S. 2010
Percent of Total Population



Source: U.S. Census Bureau, 2010

Harris County's population is diverse—more so than Texas or the U.S. According to the U.S. Census 2010, 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 (43.8%) of City of Houston residents is also greater than Harris County.

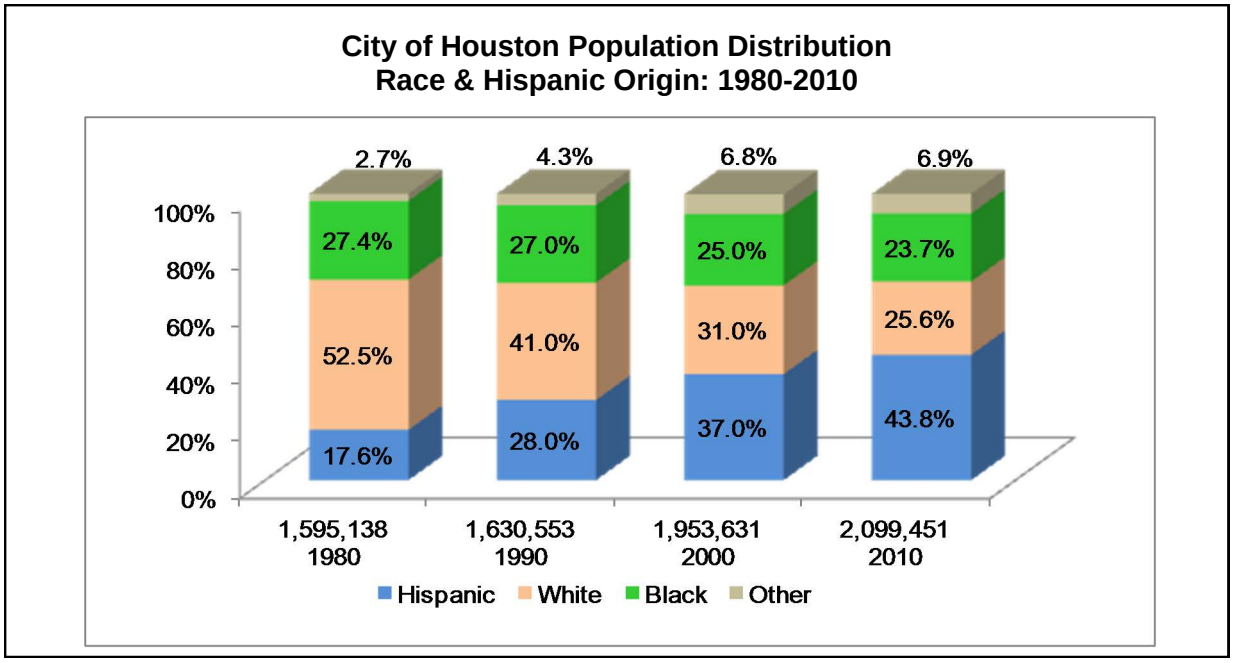
Year 2010 American Community Survey data show that an estimated 28% of county residents are under the age of 18, compared with 24% of the U.S. population. Slightly more than eight percent of the county's population is aged 65 or over, compared to 10.3% of the population of Texas and 13% of the U.S. population.

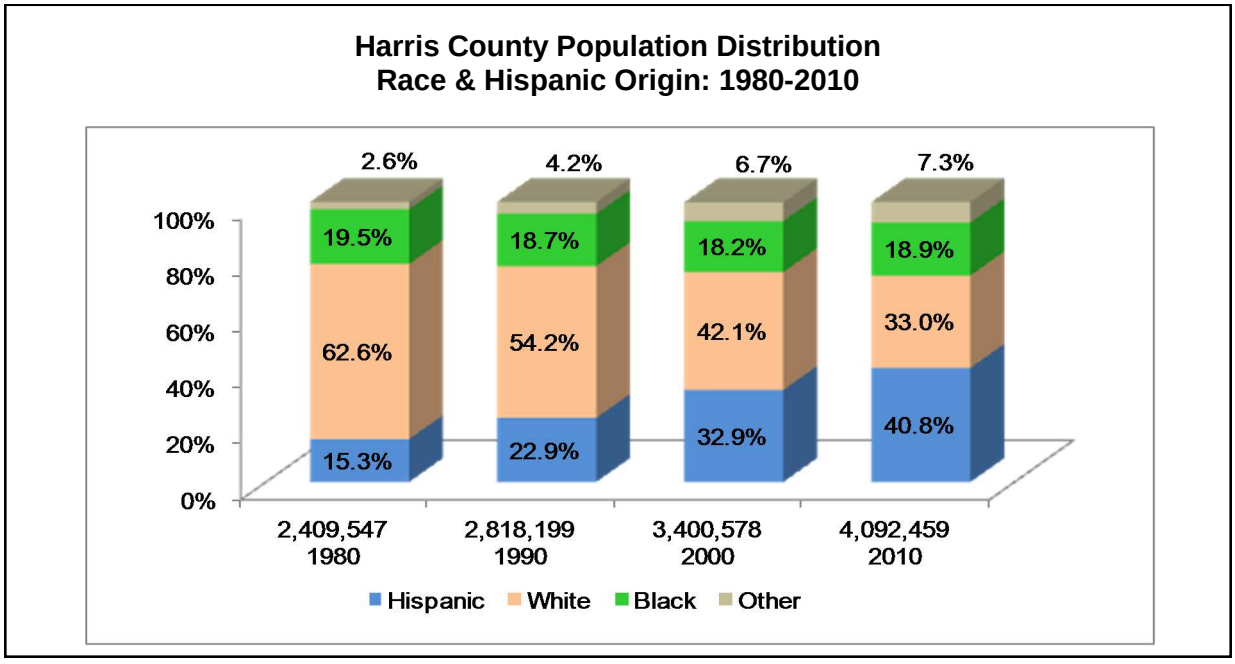
Male and female residents are closely balanced in Houston and Harris County. Census figures show that in 2010, Harris County and Houston had 50.2% male persons and 49.8% female persons.

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

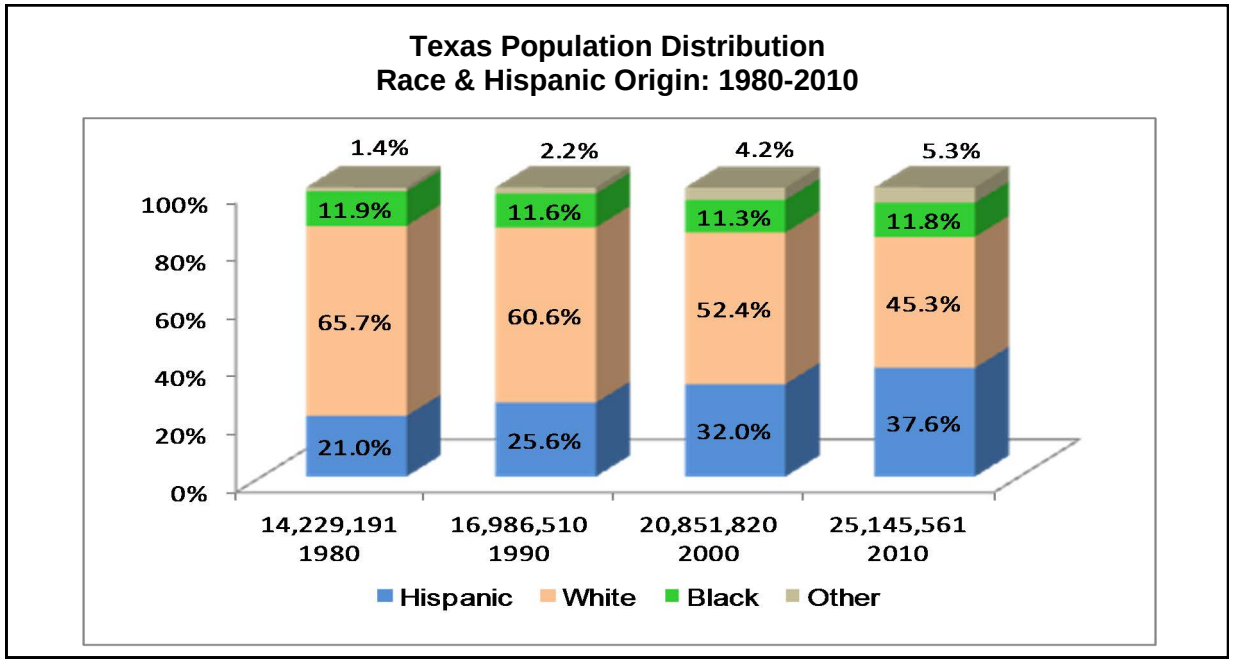
Race and Hispanic Population Trends: 1980-2010 for the city of Houston, Harris County, Texas and the U.S.

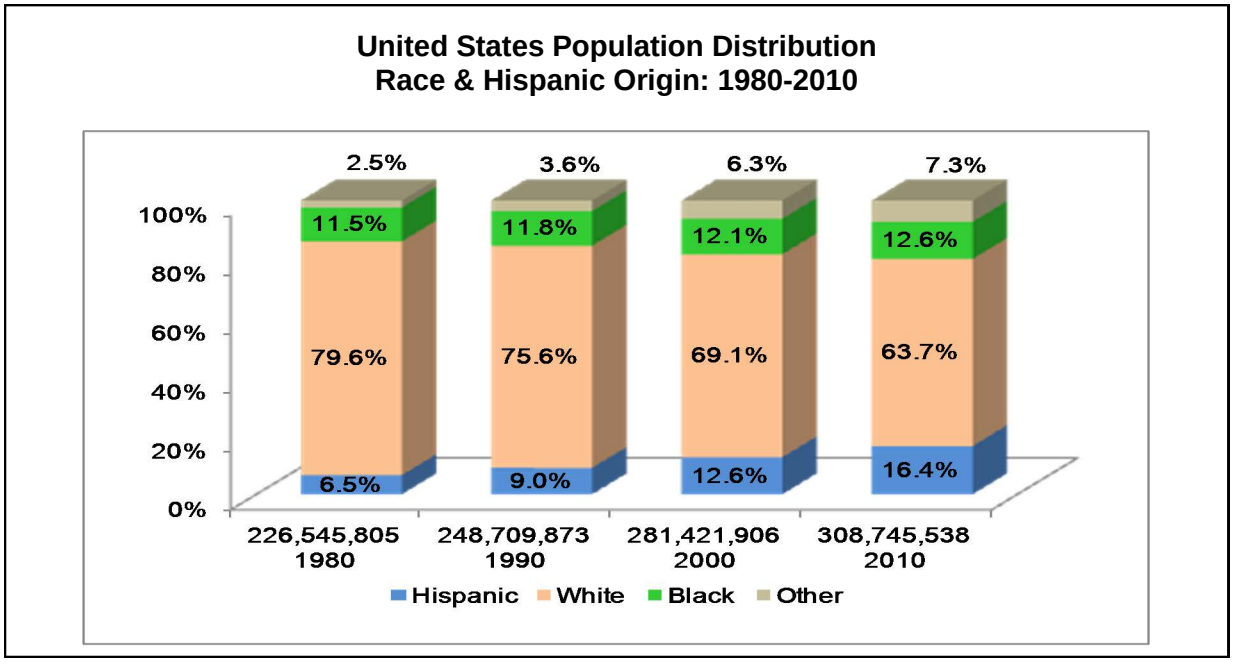
Much of the growth in Houston/Harris County can be attributed to an expanding immigrant population. The following charts show the changing racial and ethnic composition in Houston, Harris County, Texas and the U.S.





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. The black, or African American, population has remained relatively stable as a percentage of the overall population. In the "Other" group, the population of Asians and of those who identify themselves as "Two or More Races" has been increasing.

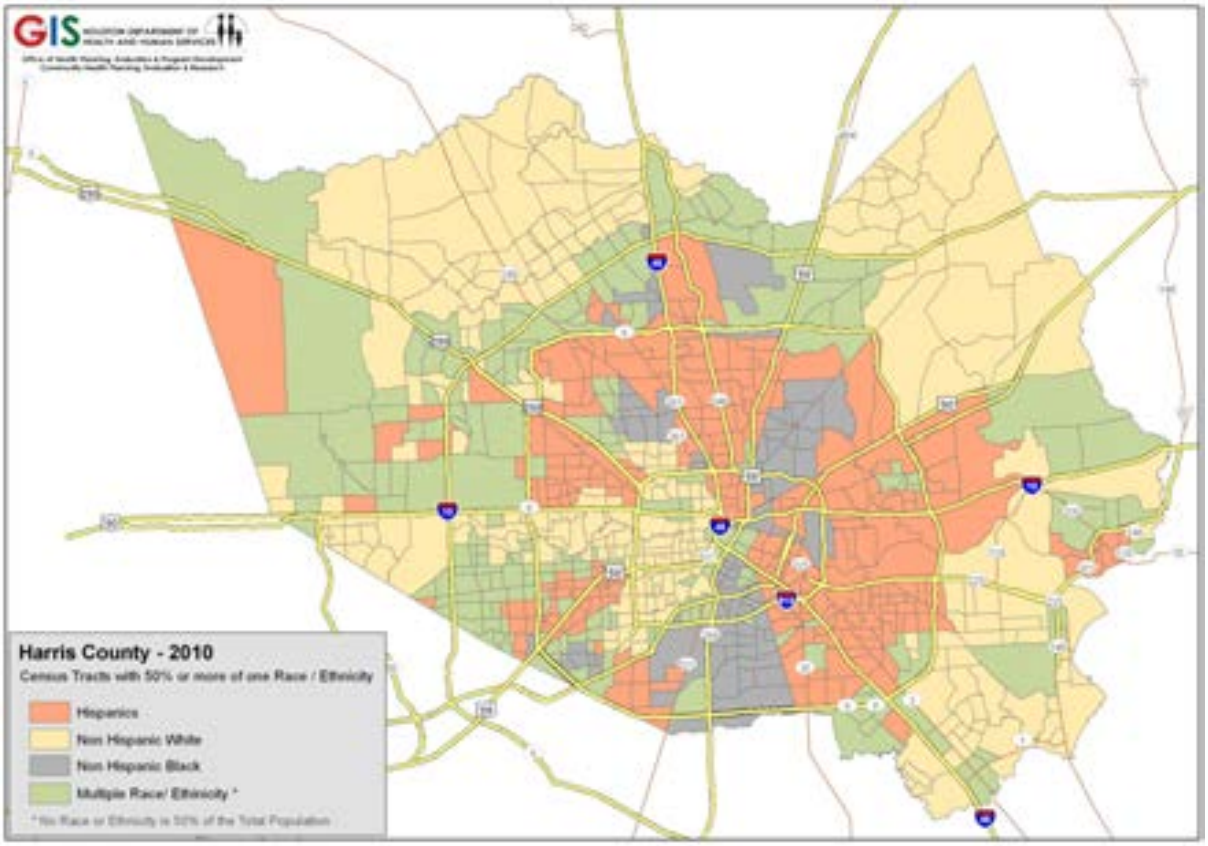




Source: U.S. Census Bureau
NOTE: 2010 Populations percentages include only individuals who identified as a single race for comparison with previous decades census data.

Racial and Ethnic Demographic Patterns in Houston/Harris County 2010

The map below shows areas in which specific racial/ethnic groups are most populous in Houston/Harris County, according to the 2010 U.S. census. If a certain group represents 50% or more in a census tract, that tract is shaded to represent that group. If no group is 50% or more of the population, that census tract is coded with no racial/ethnic group predominating.

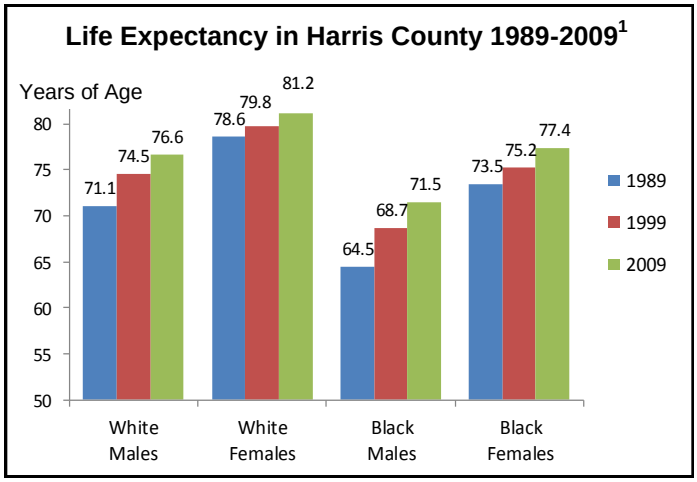


Source: Data from U.S. Census, 2010. Map developed by HDHHS, Community Health Planning, Evaluation & Research. Map concept: Greg Wythe.

Life Expectancy in Harris County 1989-2009

The chart to the right shows the rising life expectancy rates for males and females in Harris County.[1] White males and females were shown to have longer life expectancies than their black counterparts during the years of 1989 through 2009.

At the same time, life expectancy rates are increasing more rapidly for black males compared to white males, and also for black females as compared to white females. Rates for Hispanics were not available.



Source: University of Washington, Institute for Health Metrics and Evaluation

1. University of Washington, Institute for Health Metrics and Evaluation. Life expectancy U.S. counties 1989-2009. Available at http://www.healthmetricsandevaluation.org/. Accessed May 3, 2012.

Factors Influencing Health

Healthy People 2020 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.

This effort has four overarching goals to help individuals of all ages :

- Attain high quality, longer lives free of preventable disease, disability, injury, and premature death.
- Achieve health equity, eliminate disparities, and improve the health of all groups.
- Create social and physical environments that promote good health for all.
- Promote quality of life, healthy development, and healthy behaviors across all life stages.

Healthy People 2020

Factors Influencing Health

Socioeconomic Indicators

According to the Centers for Disease Control and Prevention (CDC), "the socioeconomic circumstances of persons and where they live and work strongly influence their health."[1] When a population experiences poor socioeconomic circumstances, health consequences can be noted in every stage of life. Further, these conditions have a cumulative effect, so that those with the most unfavorable circumstances have the poorest health outcomes. People further down the social ladder usually run at least twice the risk of serious illness and premature death as those near the top."[2] Common indicators used to measure the socioeconomic circumstances are: education, employment, income and housing.

Education

Harris County and Houston high school graduation rates are lower than that of the U.S. population. According to 2010 American Community Survey (ACS) data, an estimated 78% of Harris County residents aged 25 and over are high school graduates or the equivalent. This compares to a high school completion rate of 74% in Houston, 81% in Texas and 86% in the U.S. Among Harris County adults aged 25 and over, 28% have a bachelor's degree or higher, compared to 28% in the U.S. population. Twenty-six percent of Texas adults have a bachelor's degree or higher.

Economic Impact of Education

Education contributes significantly to one's income potential. On average, individuals without high school diplomas earn $21,023 per year compared to high school graduates who earn $31,283 per year. College graduates with bachelor's degrees earn $58,613 annually, while individuals with master's, doctoral and professional degrees earn $70,856, $99,697 and $125,019 respectively.[3]

Households headed by high school graduates accumulate 10 times more median wealth than households headed by high school dropouts; this wealth gap widens for households headed by college graduates that accumulate 90 times more median wealth than high school dropouts. Higher education corresponds to lower unemployment rates as well. [4]

Language and Nativity

Houston/Harris County has greater proportions of both foreign-born residents and residents who do not speak English at home than Texas or the U.S. Census data for 2010 show that 25% of Harris County residents are foreign-born, compared with 29% of Houston residents, 16% of Texas residents, and 13% of U.S. residents. In 2010, 71% of foreign-born Harris County residents reported Latin America as their birthplace and 21% reported Asia. In Houston, 72% of foreign-born residents reported they were born in Latin America and 20% in Asia.

School Dropout Rates for 26 Harris County ISDs, Houston ISD and Texas

	% Annual Dropout Rate 2005-06		% Annual Dropout Rate 2006-07		% Annual Dropout Rate 2007-08		% Annual Dropout Rate 2008-09		% Annual Dropout Rate 2009-10	
	Grades 7-8	Grades 7-12	Grades 7-8	Grades 7-12	Grades 7-8	Grades 7-12	Grades 7-8	Grades 7-12	Grades 7-8	Grades 7-12
Harris County ISDs	0.7	3.1	0.7	3.6	0.3	2.7	0.4	2.3	0.3	2.0
Houston ISD	1.6	4.7	1.2	5.0	0.5	3.2	0.6	2.3	0.5	2.6
State of Texas	0.4	2.6	0.4	2.7	0.3	2.2	0.3	2.0	0.2	1.7

Source: Texas Education Agency: Annual Report on Secondary School Completion and Dropouts in Texas Public Schools, 2009-10, 2008-09, 2007-06, 2006-07, 2005-06, 2004-05, 2003-04, 2002-03, County Supplement and District Supplement. Available at http://www.tea.state.tx.us/research. Accessed August, 2011.

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4. Gouskova E. Trend in household wealth dynamics, 2001-2003. Ann Arbor, MI: Institute for Social Research, University of Michigan. 2005. Available at http://psidonline.isr.umich.edu/Publications/Papers/tsp/2005-03_Trends_in_Household_01_03_July_05.pdf. Accessed March 1, 2012.

Of Harris County residents aged five or older, 2010 Census data show that 43% speak a language other than English at home, compared with 46% of Houston residents, 35% of Texas residents and 21% of U.S. residents. Of Harris County residents, 21% report speaking English less than "very well" compared to 24% of Houston residents. Eighty percent of those who speak a language other than English at home in Harris County speak Spanish.

Economic Impact of Language and Nativity

Immigrants may find that limited proficiency in English restricts their job choices and negatively impacts their earnings. This is particularly true for immigrant workers who speak Spanish at home in comparison to immigrants who speak other languages. In Texas in 2009, 25.5% of those who spoke Spanish at home lived below the federal poverty level (FPL), while less than 13% of immigrants who spoke other foreign languages lived below the FPL. For both native and immigrant persons in Texas who speak English, 12.2% lived in poverty.[5]

Foreign-born workers are more likely to work in service occupations than native-born workers (25% vs. 16%), and less likely to work in management and professional occupations than native-born workers (28% vs. 39%). For immigrants in 2010, the median weekly earnings of full-time workers was $598, compared to $771 for their native-born counterparts.[6]

The recent recession has left immigrants economically vulnerable due to their relative youth, lower levels of education, and recent labor force entry. Immigrants are highly overrepresented in some of the most vulnerable industries such as the service industry.[7]

Employment and Income

According to the Texas Workforce Commission, in August 2010 the estimated unemployment rate for the Harris County civilian labor force was 8.6%. This compares to a rate of 8.3% in Texas and 9.5% in the U.S during the same month. According to data from the U.S. Census Bureau, in 2010 the median household income in Harris County was $50,422 and $42,355 in Houston. In comparison, the median income in Texas households was $51,237 and $50,046 in U.S. households.

In 2010, Census data showed that 19% of Harris County residents and 23% of Houston residents lived below the FPL, which in 2010 was $11,139 for an individual and $22,314 for a family of four. In comparison, 17% of Texas residents and 14% of U.S. residents live below the FPL. In Harris County, 28% 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 14% of Houston residents over age 65 live below the FPL, compared with 9% of U.S. adults over age 65.

Economic Impact of Employment and Income

Many studies have found a strong correlation between overall well-being and employment. Employed individuals experience fewer health disorders than those who are unemployed.[8] Well-being also depends in part on the person's job satisfaction. Individuals who report being satisfied with their jobs are healthier than those who report dissatisfaction.[9] Job strain predicts health problems including heart disease and some common mental disorders.

Recent studies show that the higher a person's socioeconomic status, the less likely they are to experience chronic diseases.[10] Studies also suggest improved health among employed persons may stem in part from increased income which affords a higher standard of living, including better health care.

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Poverty and Poor Health

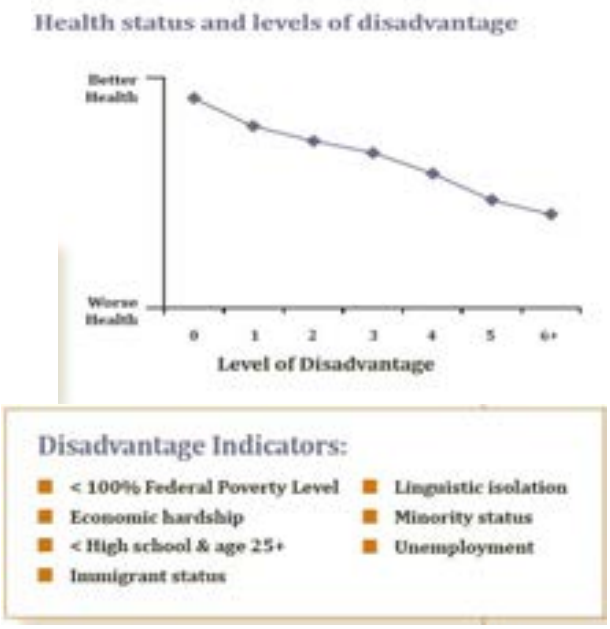
Poverty has been linked to many measures of poor health. Lower income residents have been found to:

- Report fewer average healthy days[1]
- Account for higher numbers of preventable hospitalizations[1]

A report from Gallup, Inc. summarizing results from 200,000 surveys conducted using their Gallup-Healthways Well-Being Index,[2] found that those with lower incomes report higher rates of:

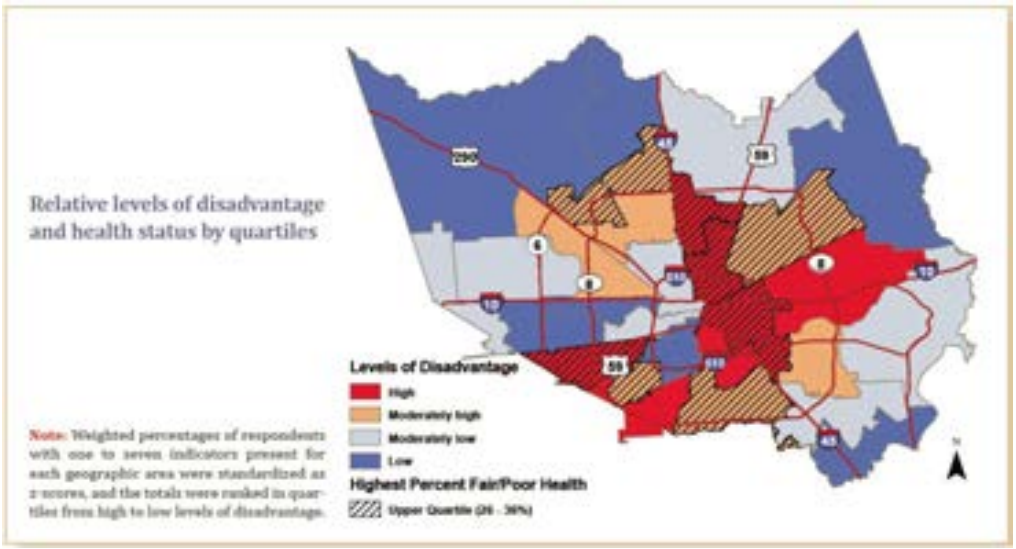
- Lack of health insurance and/or enough money to pay for healthcare
- Obesity
- Diabetes
- High blood pressure
- High cholesterol
- Heart attacks
- Asthma
- Cancer
- Depression
- Headaches
- Flu
- Colds
- Smoking

The chart below, used with permission from the *Health of Houston Survey 2010: A First Look*[3] shows how the presence or absence of seven different indicators of disadvantage impacted the general health status of the survey respondents. Each additional indicator of disadvantage led to increasingly poor health.



Geographic Differences

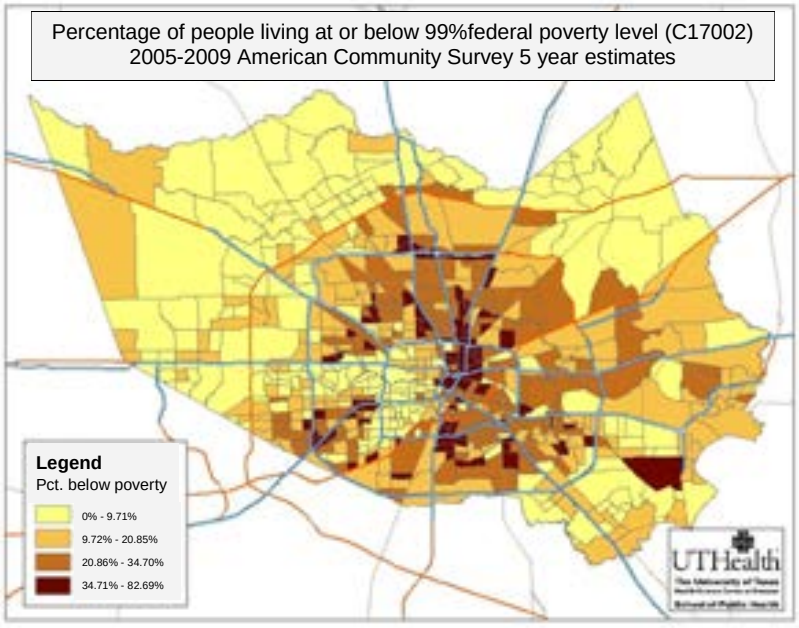
The map below[3] shows where disadvantage and health status connect. The highest levels of disadvantage, shown in red, also have the greatest percent of residents who report fair or poor health.



1. Friedan TR. CDC Health Disparities and Inequities Report—United States, 2011. *Morbidity and Mortality Weekly Report.* January 14, 2011;60:1-2. Available at http://www.cdc.gov/mmwr/pdf/other/su6001.pdf. Accessed December 13, 2011.
2. Mendez E. In U.S., Health Disparities Across Incomes are Wide-Ranging. Gallup Website. Available at http://www.gallup.com/poll/143696/health-disparities-across-incomes-wide-ranging.aspx. Published October 18, 2010. Accessed December 13, 2011.
3. Health of Houston survey, *HHS 2010 a First Look*. Houston, TX: Institute for Health Policy, The University of Texas School of Public Health, 2011.

The map to the right, provided by UT School of Public Health, Health Services Research Collaborative shows the percentage of persons living at or below 99% of the federal poverty level during 2005-2009 by census tract in Houston/Harris County.

Poverty Guidelines 2011	
Persons in Family	**Income**
1	$10,890
2	$14,710
3	$18,530
4	$22,350
5	$26,170
6	$29,990



Source: UT School of Public Health, Health Services Research Collaborative

Built Environment

The World Health Organizations (WHO) reported that "where people live affects their health and chances of leading flourishing lives."[1] Built environment includes the collection of human-made surroundings and the structures that provide the setting for human activity. Examples of the built environment are homes, commercial buildings, parks and green spaces, workplaces, and infrastructure for transportation, such as railways, highways and streets.

Common measures of the built environment include: population density, housing age, land usage, green space and walkability. According to CDC, healthy community design can improve people's health by:

- Increasing physical activity
- Reducing injury
- Increasing access to healthy food
- Improving air and water quality
- Minimizing the effects of climate change
- Decreasing mental health stresses
- Strengthening the community's social fabric
- Providing fair access to livelihood, education, and resources.[4]

Green Space

Awareness of the value of parks and other green spaces and the opportunities they bring for physical activity and cultural events has been growing. For example, Discovery Green opened in 2008 with 11.78 acres in downtown Houston, including a jogging trail, amphitheater, fountain, and green spaces for events and activities.

The Urban Land Institute recommends that low to moderate density cities maintain 25 acres of parks and open space per 1,000 residents. The City of Houston parks system, with 38,394 acres, provides 27.2 acres per 1,000 residents, greater than the national average of 18.8 acres per 1,000 residents.[5]

Harris County has approximately 6 acres of parks/open space per 1,000 residents.[6] A Children at Risk report noted that park acreage in Harris County has been steadily increasing, from 21,593 acres in 1998 to 24,664 acres in 2007. In 2007, 55% of this acreage was within Houston city limits.[6]

4. CDC website. Designing and building healthy communities. Available at http://www.cdc.gov/healthyplaces/default.htm. Accessed January 30, 2012.
5. City of Houston, Green Houston website. Available at http://www.greenhoustontx.gov/greenspace.html. Accessed January 30, 2012.
6. Children at Risk. Growing up in Houston: Assessing the quality of life for our children, 2010-2012. Available at http://childrenatrisk.org/research/book/2008publication/. Accessed January 30, 2012.

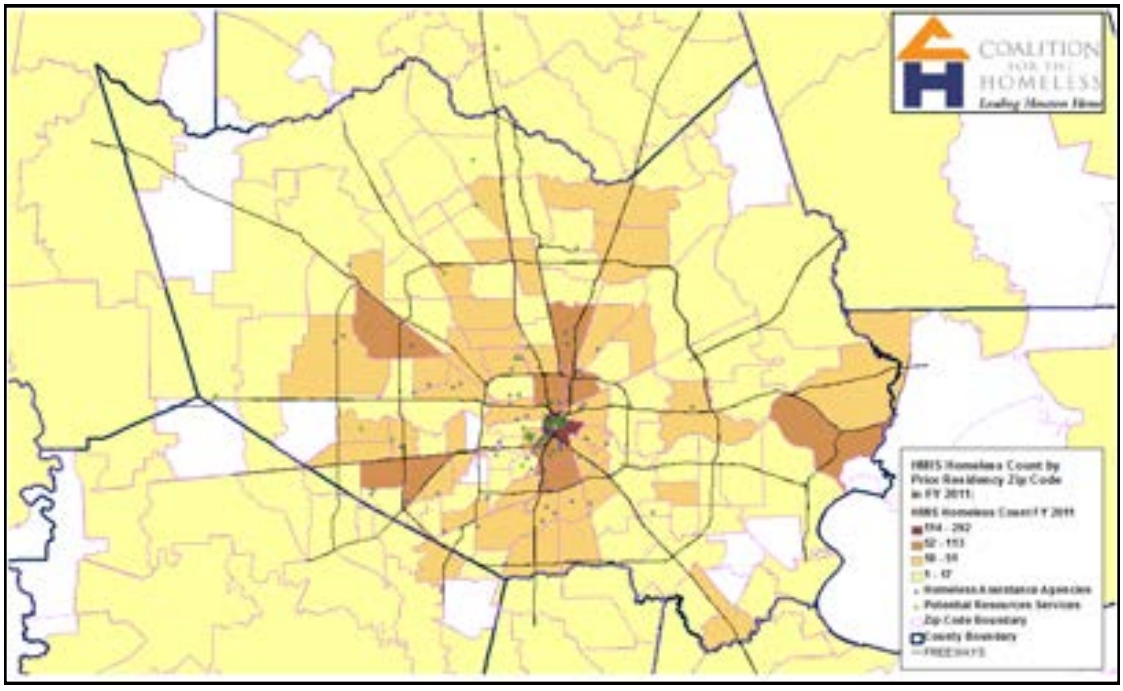
Homelessness

People who are homeless are often uninsured. According to the Coalition for the Homeless of Houston/Harris County, at least 1 in every 300 Houston area residents is homeless. *The Houston/Harris County/Fort Bend County Point -in-Time Enumeration, 2011* identified 8,026 homeless persons in Houston/Harris County in January 2011.[1] This reflects a 25% increase from the count of homeless persons in January 2010. Of those surveyed, preliminary results show that more than half (4,170) of the Harris County residents said that they did not have access to shelter when needed, compared to the 48% (3,856) persons who were sheltered on the night of the survey. An additional 2,614 were housed in the Harris County Jail at the time of the survey who would have been otherwise considered homeless.

Among the 889 persons surveyed in a local area needs assessment of the homeless in 2010,[1] more than 50% said that they were not originally from the Houston area. Fifty-nine percent said that they were homeless for the first time, whereas 38% reported that they had been homeless two or three times over the past three years; 252 persons indicated that they were chronically homeless. People of color and men were over-represented among the homeless who participated in the survey. The black population comprises 19% of the County population, but nearly 62% of those surveyed were black. In addition, more than 82% of the homeless respondents were male. The most common reason given for homelessness was loss of a job.

Mental health disorders were reported by 39% of survey respondents. Alcoholism was reported by 12%. Fifty-five percent reported that a doctor or a health professional had told them that they have a chronic medical condition. Previous years' needs assessment for the same population showed that over 69% needed dental care, 71% needed medical care and almost half the group indicated that they did not have health insurance. Significant barriers were described in their attempts to access health care, although 68% stated they were able to access at least minimal health services.

HMIS Homeless Count by Prior Residency Zip Code FY 2011



Map Source: Coalition for the Homeless of Houston/Harris County

1. Coalition for the Homeless of Houston/Harris County. *Houston/Harris County 2010 Homeless Count & Survey and 2011 Homeless Enumeration Count.* Available at www.homelesshouston.org. Accessed October, 2011.

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. In 2014, federal legislation is expected to provide 32 million additional Americans with health insurance. This influx of new patients may present a strain in accessing the United States health care system.

EDs are expected at least to stabilize the most severely ill and injured patients, and to provide walk-in care for vast numbers of persons who face financial or other barriers to receiving care elsewhere. However, many times this care could be more effectively given in a primary care setting. Additionally, delaying primary care results in preventable hospitalizations.

Healthy People 2020

Insurance Access

Overview

While access to insurance coverage and access to health care services are not synonymous, they are highly correlated. A recent Kaiser Family Foundation report noted "Health insurance makes a difference in whether and when people get necessary medical care, where they get their care, and ultimately, how healthy people are."[1] Those without insurance are far more likely than the insured to report problems getting needed medical care, such as: not having a usual source of care, post poning care or going without needed care due to cost, and not being able to afford prescription drugs. The Kaiser report stated that "insurance disparities in access to a usual source of care, annual check-ups, and preventive health care are the greatest and grew the most over a decade."[1]

Uninsured in Houston/Harris County

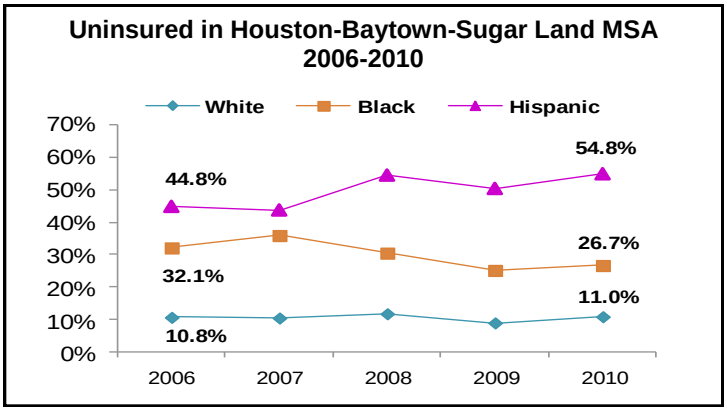
Texas has the highest rate of uninsured persons in the nation, a position the state has held for many years.[2] According to 2010 American Community Survey data, just over one in four Texas residents, or 26%, is without any form of health insurance, compared to 17% of U.S. residents. Rates of uninsurance are even higher when the elderly (primarily covered by Medicare) and chil dren (often eligible for Medicaid or CHIP if not covered by family members' employer-sponsored coverage) are excluded. At all ages, uninsurance rates are higher in Texas than the United States, and are higher in the Houston region (Houston-Baytown-Sugar Land Metropolitan Statistical Area), Harris County or the City of Houston than in Texas.

2010 American Community Survey, 1-Year Estimates: Uninsured				
	All Ages	Under 18	18 to 64	65 & older
United States	15.50%	8.00%	21.40%	1.00%
Texas	23.70%	14.50%	31.40%	2.10%
Houston MSA	25.30%	16.00%	32.30%	3.70%
Harris County	27.90%	17.70%	35.40%	4.30%
City of Houston	30.90%	18.90%	39.40%	3.50%

Source: U.S. Census. Available at www.census.gov.

Population Differences

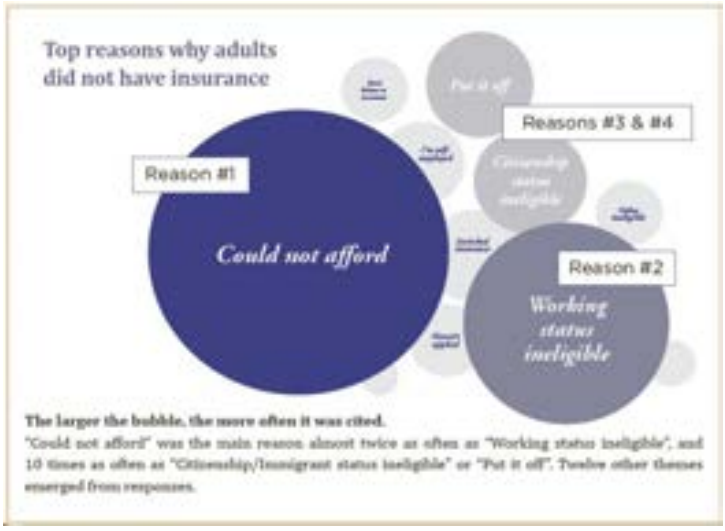
Pronounced differences in insurance status are apparent among racial and ethnic groups in the Houston area. The Behavioral Risk Factor Surveillance System (BRFSS) survey of adults who report that they are uninsured show that in the Houston-Baytown-Sugar Land MSA, in 2010, 11.0% of whites were uninsured, compared to 54.8% of Hispanics and 26.7% of blacks.



1. The Henry J. Kaiser Family Foundation. *The Uninsured: A Primer*, October 2011:11-12. Available at http://www.kff.org/. Accessed November 28, 2011.
2. U. S. Census data 2004-2010. Available at www.census.gov. Accessed November 28, 2011.

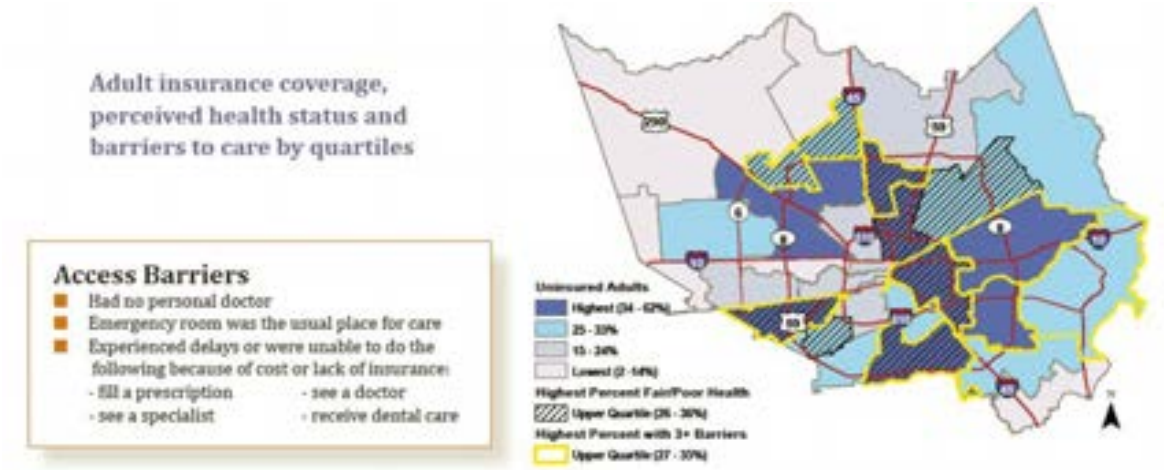
Uninsured Reasons

In his *Health of Houston Survey 2010*, Dr. Stephen Linder of the University of Texas School of Public Health's Institute for Health Policy asked the 35% of survey respondents who reported being uninsured at some point in the last year why they were uninsured. The most frequent reason was inability to afford insurance (54%). Ineligibility because of working status, such as loss of one's job, was the next most often cited reason (20%).[2] The graphic to the right, from the *Health of Houston Survey 2010*, depicts reasons adults lack insurance.



Geographic Differences

The map below, also from the *Health of Houston Survey 2010*, shows the distribution of uninsured adults across 28 survey areas. The highest proportions of uninsured adults are found in Northline, Downtown-East End and Gulfton areas. Northline, Gulfton and Sunnyside had the highest percentages of people facing barriers and fair or poor health. Northline and Gulfton had the highest percentages of all three: (1) uninsured, (2) barriers to care, and (3) fair or poor health.[3]



Uninsured and Preventive Care

The Primary Care Coalition, consisting of the Texas Academy of Family Physicians, the Texas Chapter of the American College of Physicians Services, and the Texas Pediatric Society, produced the second in a series of reports on the state's health care delivery system in 2008, noting: "Uninsured patients rarely receive preventive, primary or continuous care. Their chronic conditions like hypertension and diabetes worsen as they go unmanaged and untreated until the patients wind up in the emergency room. They see multiple physicians and other health care providers during these episodes who have no record of patient history to rely on, increasing the likelihood that they receive duplicate and unnecessary diagnostic tests, lab work and screenings.[4]

3. Health of Houston Survey. *HHS 2010 A First Look.* Houston, TX: Institute for Health Policy, The University of Texas School of Public Health, 2011. Available at http://www.sph.uth.tmc.edu/hhs2010/. Accessed November 28, 2011.
4. The Primary Care Coalition, Texas Academy of Family Physicians. *The Primary Solution: Mending Texas' Fractured Health Care System*, 2008:12. Available at http://www.tafp.org/advocacy/primarySolution.pdf. Accessed December 6, 2011.

Insurance Access, cont.

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 (HHS). In December 2009, about one in eight Texans (3 million of the 24.8 million) relied on Medicaid for health insurance or long-term services and supports.[1]

Texas Medicaid pays for acute health care services (physician, inpatient, outpatient, pharmacy, lab and X-ray) for eligible children and adults, as well as long-term services and supports for aged and disabled clients. The program primarily serves low-income families, non-disabled children, related caretakers of dependent children, pregnant women, the elderly and people with disabilities.

In 2009, women and children accounted for the largest percentage of the Medicaid population. The Medicaid population was 55% female and 77% under 21. While the aged and disabled comprise 25% of Texas' Medicaid caseload, services delivered to them comprise 58% of the program's costs. Long term services and supports comprise 24% of total costs, or $5.2 billion.[2]

According to the Texas Health and Human Services Commission, as of October 2011, 559,520 Harris County residents, or approximately 16% of the population, were enrolled in the Texas Medicaid program. Seventy-nine percent of these enrollees (439,596) were aged 18 or younger. Hispanic enrollees were the largest (50.6%) ethnic group enrolled in Medicaid followed by African Americans with 27.9%. Statewide, Hispanics comprise 54% of the Medicaid program caseload, Caucasians 23%, African-Americans 18%, and All Other/ Unknown 5%.[2]

Medicaid Point-in-Time Enrollment by Race/Ethnicity, Harris County, October 2011

Race/Ethnicity	Age 0-5		Age 6-11		Age 12-18		Age 19-64		Age 65+		Total	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
White, non-Hispanic	16,778	8.4	10,086	7.4	8,844	8.4	21,171	19.6	10,753	20.7	67,632	11.3
Black, non-Hispanic	39,213	19.7	32,724	24.0	31,206	29.8	49,402	45.8	14,649	28.2	167,194	27.9
Hispanic	119,295	60.1	84,766	62.3	56,536	53.9	28,120	26.1	14,694	28.2	303,411	50.6
American Indian or Alaskan Native	573	0.3	453	0.3	385	0.4	451	0.4	521	1.0	2,383	0.4
Asian, Pacific Islander	4,062	2.0	3,198	2.3	3,004	2.9	3,148	2.9	7,694	14.8	21,106	3.5
Unknown	18,736	9.4	4,905	3.6	4,832	4.6	5,599	5.2	3,722	7.2	37,794	6.3
Total	198,657	100.0	136,132	100.0	104,807	100.0	107,891	100.0	52,033	100.0	599,520	100.0
Percent by Age	33.1		22.7		17.5		18.0		8.7		100.0	

Data Source: Texas Medicaid Program Monthly Eligibles (Med-ID) file for October 2011.
Prepared by: Strategic Decision Support, HHSC. November 2011 (gs)

1. Texas Health and Human Services Commission website. Available at http://www.hhsc.state.tx.us/medicaid/reports/PB8/PDF/TheMedicaidNumbers.pdf. Accessed November 28, 2011.
2. Texas Health and Human Services Commission. Presentation to the House Appropriations Committee: Medicaid Overview, February 2011. Available at http://www.hhsc.state.tx.us/news/presentations/2011/Medicaid-Overview-0211.pdf. Accessed December 7, 2011.

Children's Health Insurance Program (CHIP)

The Children's Health Insurance Program (CHIP) is designed for children in families who earn too much to qualify for the Medicaid program, yet not enough to afford private insurance. Parents of these children may not have access to employer-sponsored insurance or, if family coverage is available, they may not be able to afford their portion of the premium costs. CHIP is offered by private health plans, with sponsorship from the federal and state government. CHIP provides coverage for routine medical care, hospital care, prescription drugs, dental care and immunizations.

Only Texas residents who are U.S. citizens or legal permanent residents qualify for CHIP.[3] The chart below shows how the number of children enrolled in CHIP has steadily increased from 2006 to 2011. In 2006, a total of 80,099 Harris County children ages 0-18 were enrolled in CHIP. In 2011, a total of 153,143 children ages 0-18 were enrolled. Most Harris County CHIP enrollees are ages 6 to 18.

Healthy People 2020 Objective

AHS-1: Increase the proportion of persons with health insurance

Persons with Medical Insurance	
Area	**Percent**
National Baseline 2008	83.2
Target for 2020	100.0
Houston MSA 2010	74.7
State of Texas 2010	76.3
United States 2010	84.5

According to information provided by the Texas Center for Public Policy Priorities, an estimated 50% or more of uninsured children in Harris County are eligible for CHIP or Medicaid but are unenrolled.

CHIP August Enrollment in Harris County 2006-2011

	Age <1		Age 1-5		Age 6-14		Age 15-18		Totals	
Year	Total	Percent	Total	Percent	Total	Percent	Total	Percent	Total	Percent
2006	258	13.6%	14,273	10.9%	49,147	10.9%	16,421	10.3%	80,099	10.8%
2007	175	9.2%	15,049	11.5%	53,502	11.9%	17,708	11.2%	86,434	11.6%
2008	428	22.6%	25,028	19.1%	81,906	18.1%	27,783	17.5%	135,145	18.2%
2009	387	20.4%	24,870	18.9%	84,524	18.7%	29,733	18.7%	139,514	18.8%
2010	388	20.5%	25,610	19.5%	89,982	19.9%	33,067	20.8%	149,047	20.0%
2011	257	13.6%	26,505	20.2%	92,379	20.5%	34,002	21.4%	153,143	20.6%
Total	1,893	100%	131,335	100%	451,440	100%	158,714	100%	743,382	100%
Percent by Age	0.25%		18%		61%		21%		100%	

Source: Texas Health & Human Services Commission. CHIP Enrollment Statistics. Available at http://www.hhsc.state.tx.us/research/CHIP/ChipDataTables.asp. Accesses September 11, 2011.

Race-ethnicity proportions in CHIP are difficult to assess due to poor reporting. According to the Texas Health & Human Services Commission, among CHIP enrollees in Harris County for October 2011, 5% were white, 10% were black, 36% were Hispanic, 4% were Asian, less than 1% were Native American, and 45% were of unknown race/ethnicity.[4]

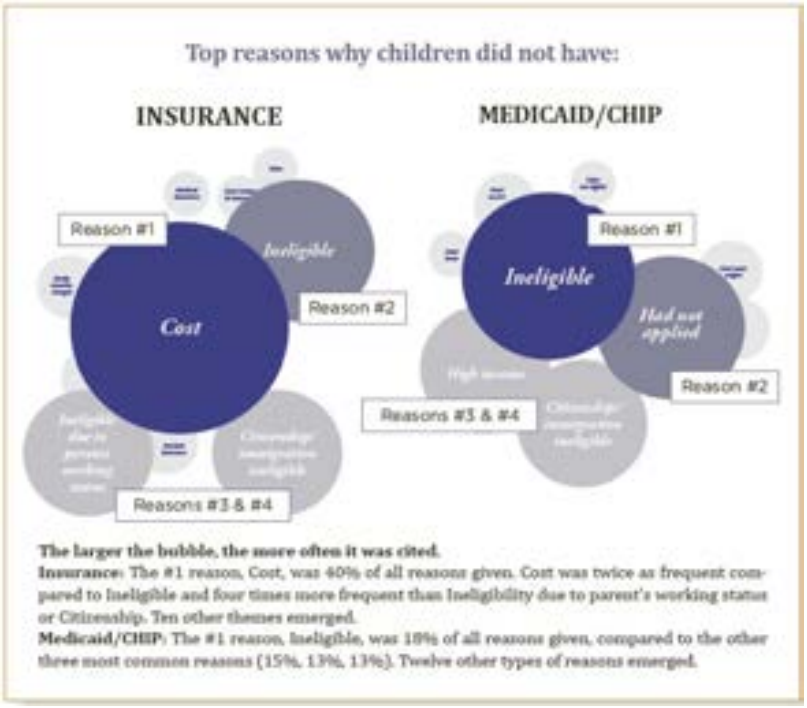
3. TexCare Children's Health Insurance. Children's Health Insurance Program (CHIP). Available at www.chipmedicaid.org. Accessed December 7, 2011.
4. Report provided to HDHHS by the Center for Strategic Decision Support, Texas Health & Human Services Commission.

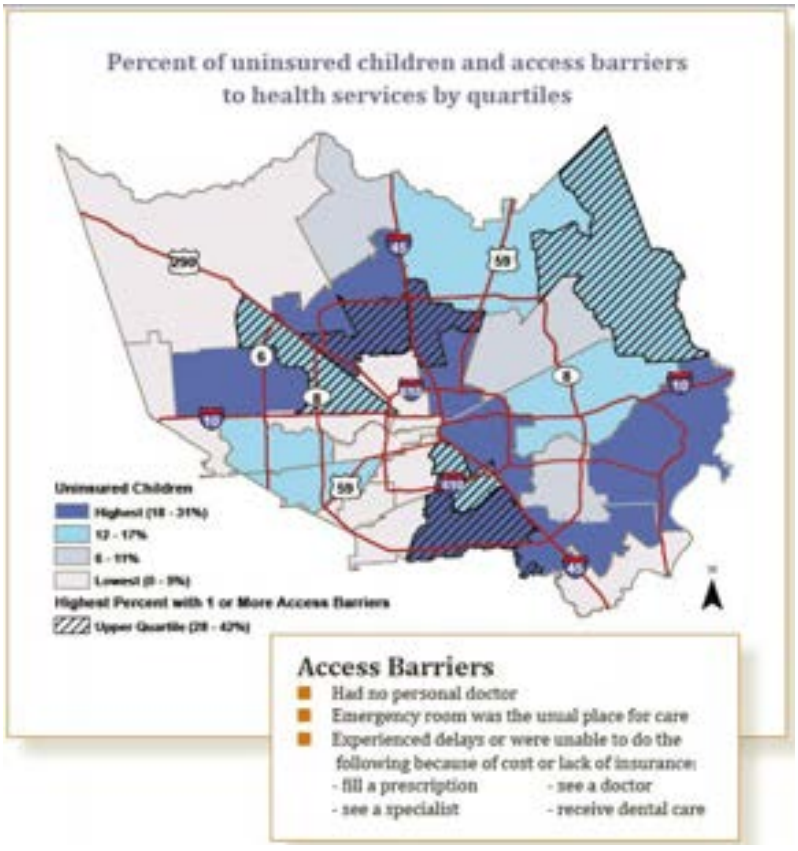
Insurance Access, cont.

Reasons Children Lack Insurance/Medicaid/CHIP

The chart at right, from the *Health of Houston Survey 2010: A First Look,* shows the most frequent responses from parents or guardians regarding children who were uninsured. The adults were asked why their child was uninsured in the last 12 months and why their child was not enrolled in either Medicaid or CHIP.

For children who did not have private medical insurance, cost was given as the primary factor. For the children who did not have health coverage, but also were not enrolled in Medicaid or CHIP, lack of eligibility was most often cited.[1]





Geographic Differences

The map at the left shows the percent of uninsured children combined with areas where families reported barriers in accessing health services. Those areas in darker shades of blue show parts of Houston/Harris County with the highest numbers of uninsured children.

The hatched areas show areas where parents/guardians reported one or more barriers in accessing health care. These barriers could include lack of a personal doctor, relying on emergency rooms for most care, or difficulties in obtaining medical/dental care or prescription medication due to cost or lack of insurance.[1]

1. Health of Houston Survey. *HHS 2010 A First Look.* Houston, TX: Institute for Health Policy, The University of Texas School of Public Health, 2011, p. 13.

CHIP/Medicaid Enrollment, Awareness and Utilization

Since 2003, Analytica, Inc. has conducted research for Texas Children's Hospital under the direction of Dr. Richard Batsell. The research surveyed Greater Houston area families with children regarding health insurance for children. Samples across a 12-county area were selected proportionate to each county's population and matched to the population's ethnic, age, and household income characteristics. Children not covered by insurance were most often found in families with incomes below $50,000, with low-education levels of parents, and among Hispanic families. From 2008 to 2011, the survey found that among families with coverage, those with coverage through work dropped from 74.0% to 57.8%, while those with coverage through Medicaid increased from 11.5% to 24.6% and through CHIP from 5.0% to 10.5%.[2]

The Texas Children's Hospital survey data also reveals an increasing awareness among Houston area parents about these programs. In 2003, 66% were aware of Medicaid coverage for children compared to 92% in 2011. Regarding CHIP coverage for children, 61% were aware of this coverage in 2003 compared to 80% in 2011. Parents who do not have insurance coverage for their children have been consistent in citing the top reasons: inability to afford coverage or to qualify for coverage.

Additional data from the Texas Children's Hospital survey shows that those with insurance are much more able to access care for their children. In 2011, 90.9% of parents with insurance for their children reported taking their children to a family doctor or pediatrician on a regular basis compared with 53.8% of parents without insurance for their children. Lower, but still statistically significant differences showed that parents with insurance were more likely to have taken their children to a specialist during the last 12 months or to access continuing care for children with a chronic illness requiring regular treatment.[2]

Economic Impact of Uninsured Population

Economic costs for the uninsured include direct costs of providing health care to the uninsured, increased costs from the inefficient use of health care services and indirect costs of preventable disability and lost productivity among uninsured persons. Many levels of society bear these costs, including government through tax expenditures, healthcare institutions through uncompensated care, insured people through higher premiums to support cost shifting and employers through indirect costs of disability and reduced productivity.[3]

Federal, state, and local governments spend approximately $30 billion annually to compensate hospitals and clinics for services provided to the uninsured. Additionally, doctors donate services valued at another $5 billion annually. Continuous healthcare coverage for all Americans will result in an economic value between $65 to $130 billion annually in improved health outcomes, assuming the uninsured will use healthcare similarly to those who have health insurance.[3]

Public Health Actions

- Provide the public with informed data regarding insurance availability and utilization.
- Provide assistance for eligible residents who seek to access CHIP, Medicaid and other health resources.
- Support efforts to expand public safety net services.
- Promote efforts and develop policies to expand health care coverage.

For More Information

University of Texas School of Public Health, Health Services Research Collaborative: *http://www. sph.uth.tmc. edu/ edu/ research/centers/chsr/hsrc/*

Texas Health and Human Services Commission: *http://www.hhsc.state.tx.us/*

211: Residents can dial 211 for information about state benefits, including CHIP and Medicaid

2. Analytica, Inc. *Texas Children's Hospital: Research Regarding Health Insurance for Children in the Greater Houston Area 2003, 2006, 2008, 2011.* Report provided to Texas Children's Hospital, Houston, Texas, June, 2011.
3. Institute Of Medicine. Hidden costs, value lost: insurance in America. IOM Website. http://www.iom.edu/~/media/Files/Report%20Files/2003/Hidden-Costs-Value-Lost-Uninsurance-in-America/Uninsured5FINAL.pdf. Accessed January 3, 2012.

Primary Care Physicians

Overview

The U.S. Department of Health and Human Services (DHHS) defines primary care physicians as those in family practice, general practice, internal medicine, pediatrics, and obstetrics and gynecology. TDSHS also includes geriatrics specialists in primary care. These physicians are key 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.

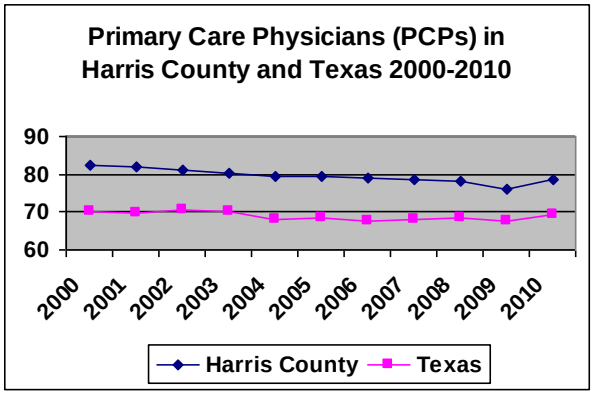
Individuals with ready access to primary care typically receive higher quality care with better health outcomes.[1] The Dartmouth Institute for Health Policy and Clinical Practice found that states relying more on primary care report better health outcomes, lower Medicare spending and lower health care utilization rates.[2]

Physician shortages are generally more acute in rural areas. However, metropolitan areas can have shortages due to physician location, accessibility to transportation, income level, and physical barriers. Houston/Harris County contains 19 designated medically underserved areas (MUAs) with shortages of primary care providers as one of the defining features, and 5 areas of medically underserved populations (MUPs).[3]

For each 1% increase in primary care physicians, average-sized metropolitan areas showed a decrease of 503 hospital admissions, 2,968 emergency room visits, and 512 surgeries.[4]

Trends: Houston/Harris County 2000-2010

Despite a 23.4% growth in the Harris County population from 2000-2010, the county supply of primary care physicians grew only 18.2%, resulting in a steadily declining ratio of primary care physicians to population. The chart to the right shows the ratio of primary care physicians in Harris County and Texas for every 100,000 population. In 2010, Harris County showed a ratio of 78.7 primary care physicians for every 100,000 population, which can be compared to the Texas ratio of 69.1.



Source: Texas Medical Board—September-October: 2000-2010

The Demand for Safety Net Providers

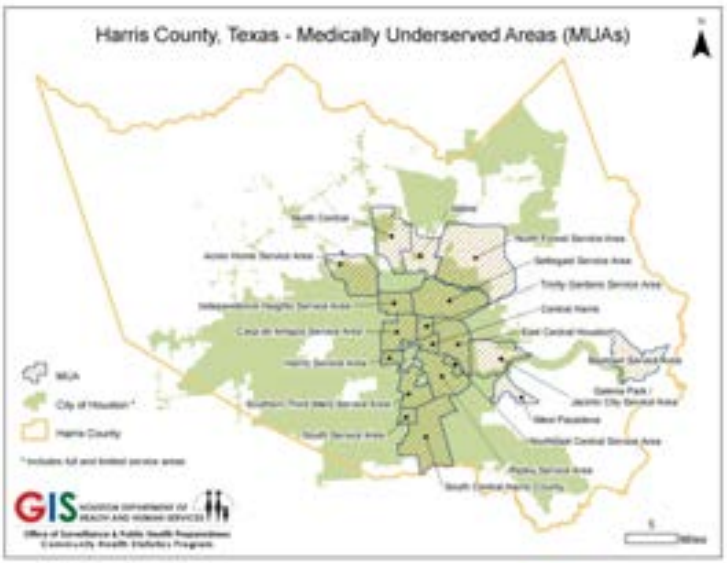
Using 2008 data from the St. Luke's Episcopal Health Charities Project Safety Net survey of primary care clinics serving low-income and underinsured residents of the greater Houston area, Dr. Chuck Begley et al. estimated that the public and private safety net providers in Houston/Harris County are meeting about 30% of the demand for primary care visits by the low income population, while the rest is met by private physicians or is unmet. Demand for primary care by this population is projected to increase by 30% under federal health reform, with growing inadequacy of safety net providers to meet the increasing need. In upcoming years, these safety net providers are anticipated to have the capacity to meet less than 25% of the demand.[5]

Increasing the percentage of met demand of the low-income population from 30% to 100% over the next nine years would require the local safety net to expand primary care service capacity by approximately 17-18% per year. To maintain the current percentage of met demand (30%), the safety net would have to grow 2-3% per year.[5]

1. National Association of Community Health Centers, The Robert Graham Center. Access denied: a look at America's medically disenfranchised. The Robert Graham Center website. Available at www.graham-center.org. Accessed January 10, 2012.
2. Baicker K, Chandra A. Medicare Spending, the Physicians Workforce, and Beneficiaries' Quality of Care. *Health Affairs.* 2004;4:184-197. Web exclusive w.4184. Available at http://content.healthaffairs.org/content/early/2004/04/07/hlthaff.w4.184.full.pdf. Accessed December 7, 2011.
3. Health Resources and Services Administration of the United States Department of Health and Human Services. *Find Health Shortage Areas: HPSA by State and County*, 2011. Available at http://hpsafind.hrsa.gov/. Accessed December 7, 2011.

Geographic Differences

The map below shows the federally designated Medically Underserved Areas (MUAs) in Houston/Harris County, designated by the US Health Resources and Services Administration as having too few primary care providers, high infant mortality, high poverty and/or high elderly population.



Healthy People 2020

Objective ASH-4: Increase the number of practicing primary care providers (includes Medical Doctors, Doctors of Osteopathy, Physician's Assistants, and Nurse Practitioners). Note: At the time of this publication, Healthy People 2020 had created the objective, but did not have baseline and target data available.

Public Health Actions

- Inform the public about concerns regarding the growing need for primary care providers.
- Mobilize community partnerships to study the impact and scope of primary care physician shortages, and recommend strategies for improvement.
- Develop policies and plans to support access to a medical home for all.
- Serve as a health care safety net when other sources of care are unavailable.

Economic Impact of Primary Care Physician Shortage

With inadequate primary care, people develop advanced conditions that are difficult and expensive to treat, resulting in higher healthcare costs. States with a higher primary care physician to population ratio have better health outcomes, with decreased mortality from cancer and heart disease, fewer premature deaths and increases in life span.[6]

In 2000, an estimated 5 million admissions to U.S. hospitals with a resultant cost of more than $26.5 billion, may have been preventable with high-quality primary and preventive care treatment. Assuming an average cost of $5,300 per hospital admission, a five percent decrease in the rate of potentially avoidable hospitalizations alone could reduce inpatient costs by more than $1.3 billion.[7]

Lower mortality rates are correlated with more primary care physicians but not with more specialists.[6]

For More Information

The University of Texas School of Public Health, Health Services Research Collaborative: http://www.sph.uth.tmc.edu/research/centers/chsr/hsrc/

U.S. Department of Health and Human Services, Health Resources and Services Administration: http://bhpr.hrsa.gov/shortage/

National Center for Policy Analysis: http://www.ncpa.org/pub/ba706

Henry J. Kaiser Family Foundation: http://www.kff.org/

4. Kravet SJ, et al. Health Care Utilization and the Proportion of Primary Care Physicians. *The American Journal of Medicine.* 2008;121(2):142-148. Available at http://www.amjmed.com/article/S0002-9343(07)01088-1/abstract. Accessed November 28, 2011.
5. Begley C, et al. Health Reform and Primary Care Capacity: Evidence from Houston/Harris County, Texas. June 2011. Report from the UT School of Public Health, St. Luke's Episcopal Health Charities, and MD Anderson Cancer Center. Available at http://www.sph.uth.tmc.edu/research/centers/chsr/hsrc/. Accessed November 28, 2011.
6. Starfield B, et al. The effects of specialist supply on populations' health: assessing the evidence [published online ahead of print March 2005]. *Health Aff*. 2005. Available at http://content.healthaffairs.org/content/early/2005/03/15/hlthaff.w5.97.full.pdf+html. Accessed January 3, 2012.
7. Agency for Healthcare Research and Quality, Healthcare Cost & Utilization Project. Preventable hospitalizations. AHRQ Website. Available at http://archive.ahrq.gov/data/hcup/factbk5/factbk5a.htm. Accessed January 3, 2012.

Preventable Hospitalizations

Ben Taub Hospital

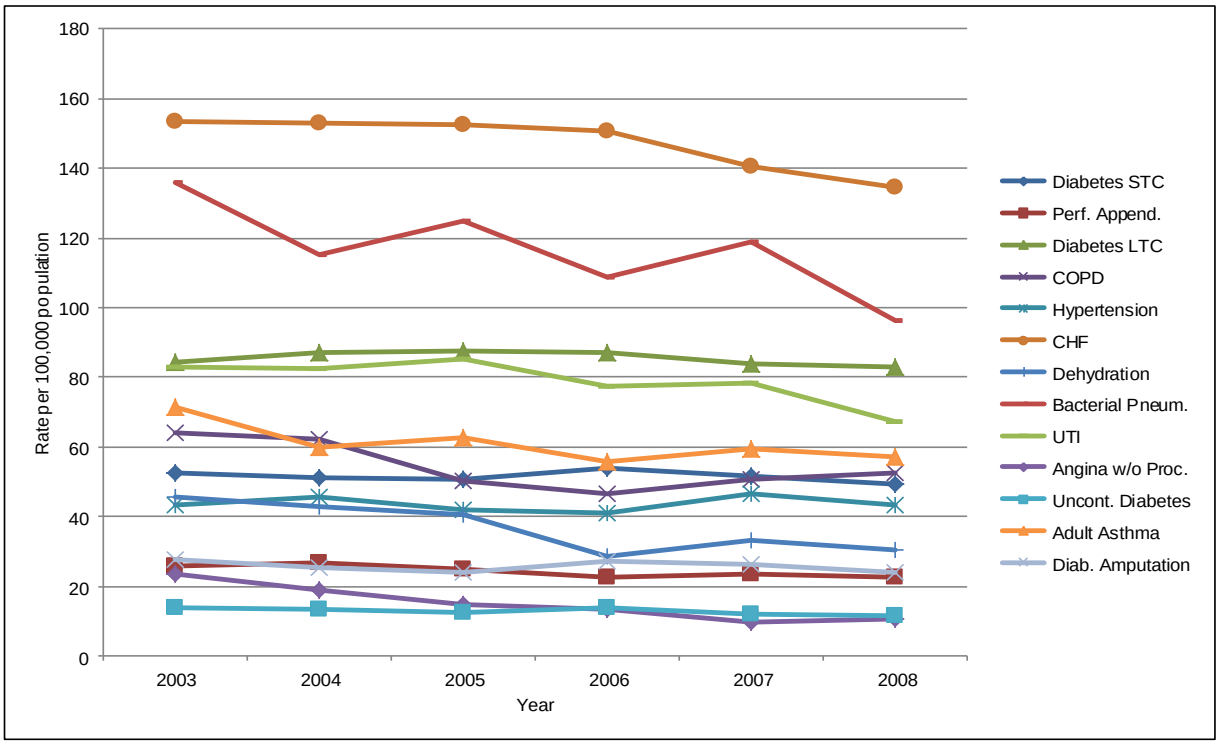
Overview

Preventable hospitalizations (PH) 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 come from hospital discharge data, they represent the quality of health care outside of hospitals. PQIs provide a means to identify unmet community 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: Preventable Hospitalizations in Harris County Adults Age 18 to 64, 2003-2008[2]

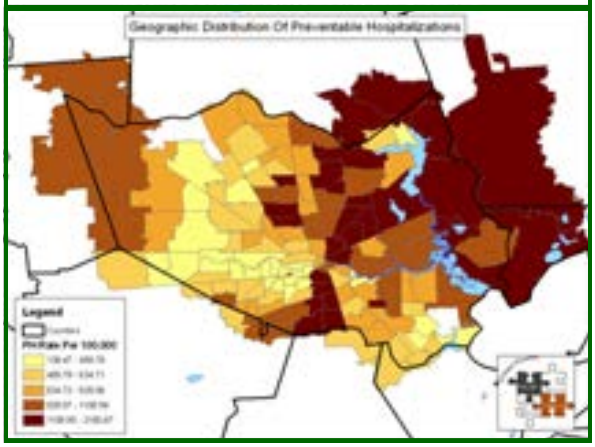


1. Agency for Healthcare Research and Quality. Available at: http://hcupnet.ahrq.gov/. Accessed October 28, 2008.
2. Murty S, Begley C, Swint J. Inpatient preventable hospitalizations for ambulatory care sensitive conditions in Harris County, 2011. UT Health, School of Public Health. Inpatient data for this report was obtained from the Texas Health Care Information Collection (THCIC) discharge data. Other datasets include Census 2000, St. Luke's Episcopal Health Charities Project Safety Net data for 2009, and Texas Medical Board complete electronic database for 2010. Complete report is located at https://sph.uth.tmc.edu/research/centers/chsr/hsrc/.

Geographic Distribution

The distribution of PHs[3] is consistent with the distribution of primary care related Emergency Department (ED) visits[4] (see that section of this report). The northeast and south central areas of Harris County have high rates of both.

Preventable Hospitalizations Harris County Adults Age 18-64, 2003-2008



Data source: Texas Health Care Information Collection
Map developed by: UTSPH, Health Services Research Collaborative

Population Differences

Rates of PHs vary significantly with geographic location. Male gender, increasing age, non-white race and non-Hispanic ethnicity are all associated with high PH rates. PH rates are consistently higher among the uninsured than among the privately insured and the Medicaid insured.

About a fifth of all PHs in Harris County between 2003 and 2008 were repeat admissions. Males, non-whites and non-Hispanics are all more likely to have a repeat or multiple PH. The Medicaid insured are more likely to have multiple PHs than the uninsured and privately insured. There is also a negative relation between risk of PHs and primary care availability. Decreases in safety nets and primary care physicians are related to increases in PHs.

Preventable hospitalizations for children include pediatric gastroenteritis, pediatric urinary tract infection, pediatric perforated appendix, pediatric asthma, and pediatric diabetes short-term complications. —TDSHS

Economic Impact of Preventable Hospitalizations

A negative relationship exists between the risk of preventable hospitalizations and primary care availability in Harris County. Therefore, an increase in funding for primary care safety net clinics is directly related to a decrease in expenses for preventable hospitalizations. Increasing primary care availability, both at safety net clinics and at private physicians' offices, can be a cost effective method to reduce preventable hospitalizations.

During the years 2005-2009, Texas hospitals recorded 1,233,023 potentially preventable adult hospitalizations at an estimated $31.9 billion in hospital charges.[5]

Public Health Actions

- Develop policies and plans to solve health problems. Build on information such as indications that 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 can 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.ahrq.gov

Texas Health Care Information Council: *www.dshs.state.tx.us/thcic*

TDSHS Preventable Hospitalizations: *www.dshs.state.tx.us/*

Prevention Quality Indicators: *www.ahrq.gov/data/hcup/factbk5/factbk5d.htm*

3. Murty S, Begley C, Swint J. Inpatient preventable hospitalizations for ambulatory care sensitive conditions in Harris County. 2011. Complete report available at https://sph.uth.tmc.edu/research/centers/chsr/hsrc/. Accessed January, 2012.
4. Begley C, Courtney P, Burau K. Houston hospitals emergency department use study: January 1, 2009 through December 31, 2009. 2011. UT Health, School of Public Health. Complete report available at https://sph.uth.tmc.edu/research/centers/chsr/hsrc/. Accessed January, 2012.
5. Texas Department of State Health Services, Adult potentially preventable hospitalizations in Texas. Report presentation available at http://www.trha.org/conference_2011/presentations/16_PotPreventableHospitalizations_Gilliam.pdf. Accessed January 12, 2012.

Emergency Room Visits

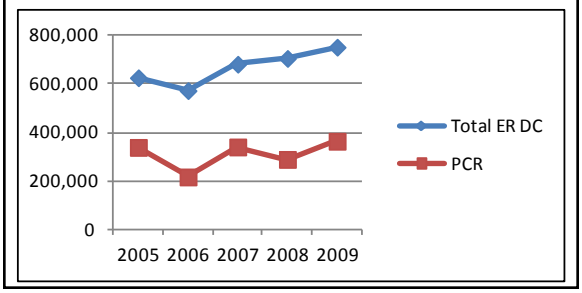
Overview

Primary Care-Related ER Visits

Primary care-related emergency room (ER) 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 has 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, un-insurance, medical under service, and ER overcrowding. Primary care-related ER visits are estimated from routine discharge 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 2004-2009

Total and Primary Care Related ER Discharges for Twenty Two Houston Hospitals[1]



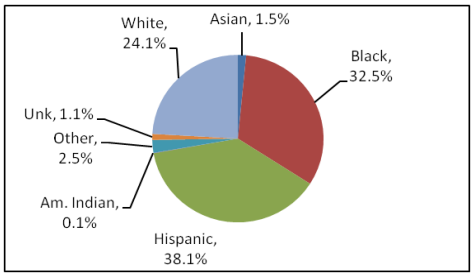
Primary care related ER visits in 22 local hospitals can be compared to the total number of ER visits that resulted in discharge to home or self care. Primary care ER visits have fluctuated as a percentage of discharged visits (54.27% in 2005, 38.07% in 2006, 50.10% in 2007, 41.16% in 2008, and 48.56% in 2009). The length of stay in the ER for a primary care related visit has declined from a mean of 3.96 hours in 2007 to 3.86 hours in 2008 and 3.70 hours in 2009.[1]

Population Differences

In 2009, primary care related visits in 24 Houston/Harris County area hospitals were comprised of 24.1% white, 32.5% black, and 38.1% Hispanic.[1]

Children from age 0 to 17 and adults age 18 to 44 each made up 36-37% of primary care related ER visits. The majority (58.5%) of primary care related ER visits were by female patients.[1]

Percent of Local Primary Care Related ER Visits By Race/Ethnicity, 2009[1]

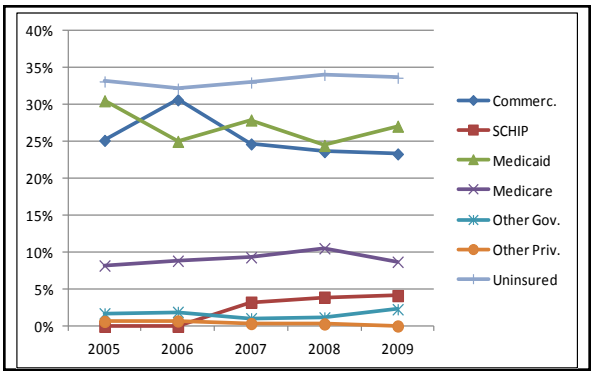


1. Begley C, Courtney P, Burau K. *Houston hospitals emergency department use study, January 1, 2009 through December 31, 2009.* University of Texas Health Science Center at Houston, School of Public Health, May 2011. Available at http://www.sph.uth.tmc.edu/hsrc. Accessed September 28, 2011

ER Use by Payer Source

Even though primary care related ER visits are found among all payer sources, they are found predominantly among those who are uninsured, as shown in the figure below. Visits by the commercially insured have declined, but visits by CHIP enrollees have increased in recent years. Visits by Medicaid enrollees have fluctuated.

Primary Care Related ER Visits by Insurance Status in Harris County[2]



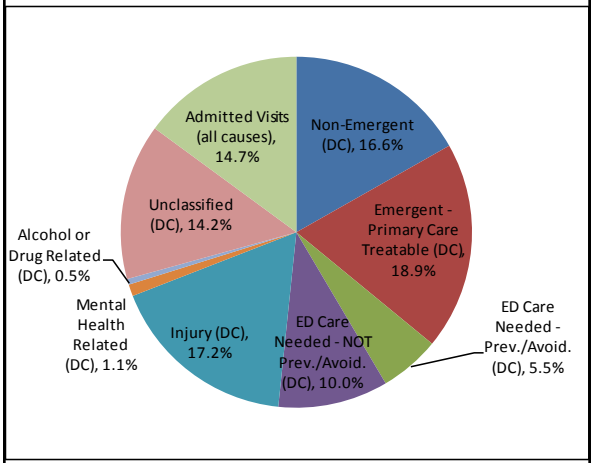
ER Utilization

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 departments saw 113.9 million people in 2003 compared to 90.3 million people in 1993. Nationwide emergency department visits in 2003 averaged 312,000 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.

An analysis of ER visits in 2009 found that the highest rates of primary care related visits in Harris County were among males under age 5 (followed closely by females under age 5), Black non Hispanics, and Medicare enrollees between the ages of 35 and 64. Those with commercial insurance had the lowest rates for all age groups. Females age 18 to 21 had a rate nearly triple that of males age 18 to 21.[3]

Emergency Room Visits in Houston/Harris County 2009

Total ER Visits in 2009 By Type[2]
Harris County



In 2009, 953,395 ER visits were made to 24 Harris County area hospitals. Out of this, 812,863, or 85.25%, were discharged to home or self care, and 14.75% were admitted or transferred. Primary care related visits (combination of non emergent, emergent yet treatable, and ER care needed but preventable) made up 41.0% of all ER visits.

Most primary care related visits occur between 12 PM and 7 PM. Visits by children peak in the early evening, whereas visits by adults peak at noon. The most frequent diagnosis for a primary care related ER visit continues to be acute upper respiratory infection not otherwise specified.[2]

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.

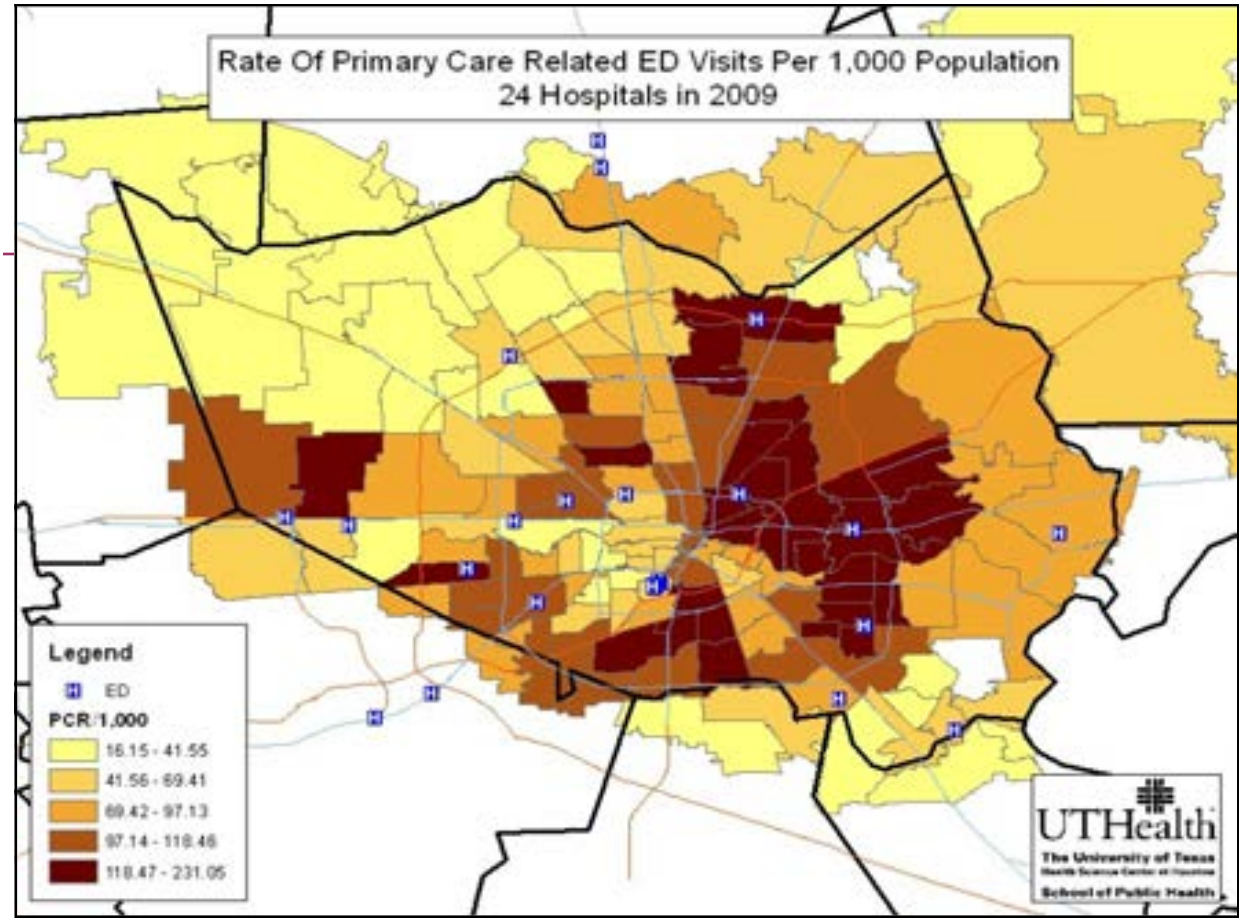
2. Begley C, Courtney P, Burau K. *Houston hospitals emergency department use study, January 1, 2009 through December 31, 2009.* University of Texas Health Science Center at Houston, School of Public Health, May 2011. Available at http://www.sph.uth.tmc.edu/hsrc. Accessed September 28, 2011.
3. Courtney P. *Rates for select types of emergency room visits in Harris County , Texas, 2009.* University of Texas Health Science Center at Houston, School of Public Health, May 2011. Available at http://www.sph.utc.tmc.edu/hsrc. Accessed September 28, 2011.

Emergency Room Visits, cont.

Geographic Distribution

The highest rates of primary care related ER visits are found mainly among persons in the northeast and south central parts of Harris County. However, an area near Katy on the west side also has some of the highest rates.

A ZIP code level analysis of the frequency of primary care related ER visits reveals that visits are decreasing in some areas but increasing in other areas. The west side of the county is one area of increased visits.[1]



Primary care-related ER visits are estimated from routine discharge data obtained from hospital ERs.

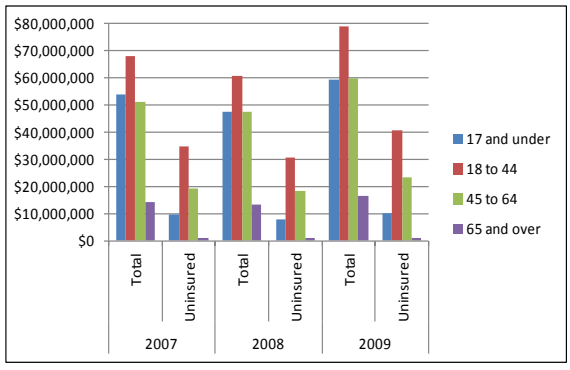
1. Begley C, Courtney P, Burau K. *Houston hospitals emergency department use study, January 1, 2009 through December 31, 2009.* University of Texas Health Science Center at Houston, School of Public Health, May 2011. Available at http://www.sph.uth.tmc.edu/hsrc.

Economic Impact of Emergency Room Visits

The average cost of an emergency room visit is roughly four times the average cost of an outpatient visit. For example, in 2009 the average cost of an emergency department visit for children was $568, but the average cost of an outpatient visit for children was only $151.[2] The emergency room must see all individuals in need of help: insured and uninsured, in need of urgent care and in need of non urgent care. However, primary care related use of the emergency room is not always a cost effective way to use health care resources.

The figure below shows the estimated cost savings if primary care related ER visits in Harris County took place in an outpatient setting instead (for all persons as well as the uninsured). In every case the biggest savings could be achieved by a more appropriate level of care for adults age 18 to 44. Since children and the elderly are the most likely groups to have public or private coverage, the problem of uninsured expenses is mainly one of adults. The cost of caring for the uninsured is often uncompensated[2] and is often passed on to those with private insurance or local taxpayers. Reducing the number of primary care related ER visits by the uninsured is appropriate and necessary from both a clinical standpoint (e.g., triage, appropriate level of care) as well as an economic standpoint (less costly level of care, more effective use of resources).[3]

Estimated Cost Savings if Primary Care Related ER Visits in Harris County Took Place In An Outpatient Setting Instead (Total and Uninsured)[3]



Healthy People 2020

Objective ASH-1.1: Increase the proportion of persons with health insurance

Persons Under Age 65 Covered by Health Insurance

Area	Percent
National Baseline 2008	83
Target for 2020	100
Houston-Baytown-Sugar Land MSA 2010	75
State of Texas 2010	74
United States 2010	83

Public Health Actions

- Expand access to affordable convenient outpatient care at alternative locations to the ER.
- Educate people about health issues, the importance of a medical home, and resources such as 24-hour nurse advice lines to assist in determining the need for ER care.
- Establish working relationships between individual hospitals and nearby clinics to which patients can be referred for appropriate care.

For More Information

Houston Health Services Research Collaborative (several years of detailed reports on ED utilization): *www.sph.uth.tmc.edu/hsrc/*

Emergency Medical Services: *www.nlm.nih.gov/medlineplus/emergencymedicalservices.html*

National Center for Health Statistics: Emergency Department Visit Data: *www.cdc.gov/nchs/about/major/ahcd/ercharts.htm*

New York University ED Algorithm: *http://wagner.nyu.edu//chpsr/*

2. Machlin, S.R. *Trends in health care expenditures: 2006 versus 1996.* Statistical Briefs #253-256. August 2009. Agency for Healthcare Research and Quality, Rockville, MD. Available at http://www.meps.ahrq.gov/mepsweb/data_stats/MEPS_topics.jsp?topicID=5Z-1. Accessed August 2009.
3. Begley C, Courtney P, Burau K. *Houston hospitals emergency department use study, January 1, 2009 through December 31, 2009.* University of Texas Health Science Center at Houston, School of Public Health, May 2011. Available at http://www.sph.uth.tmc.edu/hsrc. Accessed September 29, 2011.

Behavioral Health ER Visits

Overview

Persons who have behavioral health problems may seek treatment at emergency rooms, often because of a lack of access to community based resources for behavioral health treatment. Furthermore, while ER staff are trained to deal with trauma and serious medical illnesses, they are often unequipped to intervene and treat behavioral health problems.

The problems of behavioral health emergency room visits may be a barometer of problems elsewhere in the behavioral health care system. The following information addresses combined data from the ERs of local general hospitals.

Data from the Neuropsychiatric Center (NPC) is not included.

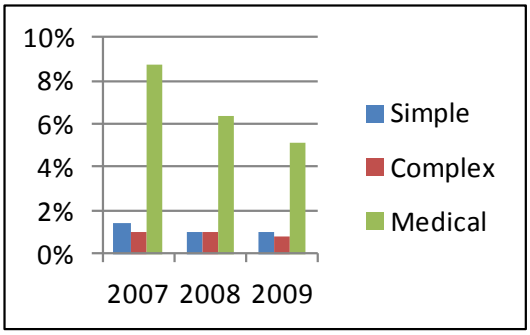
Public Health Actions to Address Behavioral Health

- Work with community partnerships and state legislators to expand access to and funding for outpatient mental health services, especially for the uninsured.
- Expand access to crisis intervention services.
- Find ways to coordinate medical and behavioral treatment services.

Trends and Demographics:

Persons with simple (one diagnosis) or complex (multiple diagnoses) behavioral problems may be best served in an outpatient setting, but are often seen in the ER. However, the majority of persons with a behavioral health ER visit are seen primarily for a medical problem (as seen in the figure). The majority of simple visits are for mental health problems, but complex visits often involve a mixture of mental health and substance abuse problems. In 2008, adults age 26 to 44 made up 35.4% of simple problems, 40.8% of complex problems, and 26.2% of medical problems. Males made up more than half of all complex visits in 2008.[1]

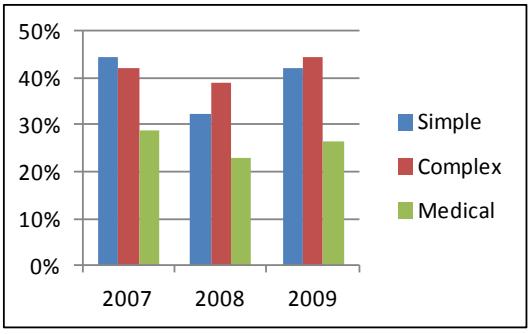
Types of Behavioral ER Visits As Percentages Of Total ER Visits in Harris County Hospitals[1]



Payment for Behavioral Health ER Visits

Persons with simple and complex behavioral problems are the ones most likely to need or access behavioral services. As shown in the figure, they are predominantly uninsured. In 2009, nearly 45% of persons with complex behavioral needs were uninsured. Persons enrolled in Medicare made up 29.1% of medical/behavioral visits in 2007, 36.2% in 2008, and 32.2% in 2009. However, for persons who have private or public health insurance, coverage is often more generous for medical problems.

Percentage of Behavioral Health ER Visits That Are Uninsured[1]



1. Courtney P. *Emergency department visits for behavioral health conditions in Harris County, Texas, 2007-2008.* University of Texas Health Science Center at Houston, School of Public Health, August 2010. Available at http://www.sph.uth.tmc.edu/hsrc.

Health Behaviors

According to Healthy People 2020, lifestyle, health 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 2020

Tobacco Use

Overview

Tobacco use is the leading preventable cause of 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.

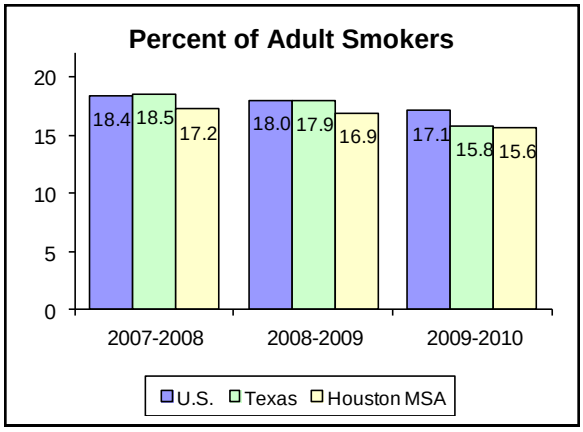
Nationally, tobacco use among youth has declined in recent years. The CDC notes that 17.2% of high school students were smokers in 2009, compared to 20% in 2007, and 28.5% in 2001.

In Texas, tobacco use among high school students has decreased, as well. The TDSHS *Youth Risk Behavior Surveillance System (YRBS)* reports that 21.2% of surveyed high school aged students in Texas smoked cigarettes in the last 30 days in 2009, compared to 24.2% in 2005, and 28.4% in 2001.

In 2006, the *Texas Youth Tobacco Survey* reported use of tobacco by 32% of high school students and 16% of middle school students in Health Service Region 6/5S, an area that includes Houston/Harris County.

In the U.S., tobacco use is responsible for one in five deaths annually.
—CDC Fact Sheet

Trends: Houston/Harris County 2007-2010



Source: TDSHS BRFSS survey

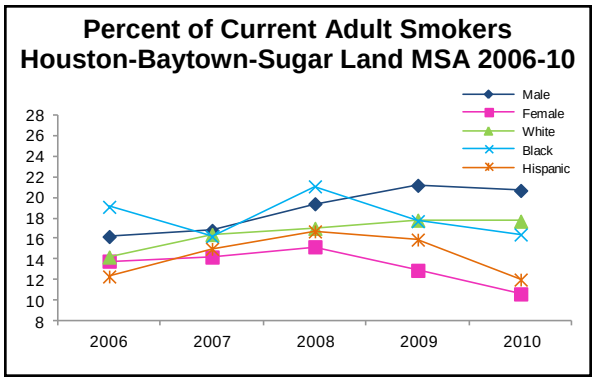
The Behavior Risk Factor Surveillance System (BRFSS) survey of adults shows that the percent of adults who report smoking has been declining each year in the Houston-Baytown-Sugar Land Metropolitan Statistical Area (MSA) (see appendix for map of this area), as well as in Texas and the U.S.

TDSHS Vital Statistics data indicate that in 2009, 2.8% of all women who gave birth in Harris County smoked during pregnancy, a decrease from 4.8 % in 1999. In Texas, 5.4% of women who gave birth in 2009 smoked during pregnancy, a decrease from 6.8% in 1999.

Population Differences

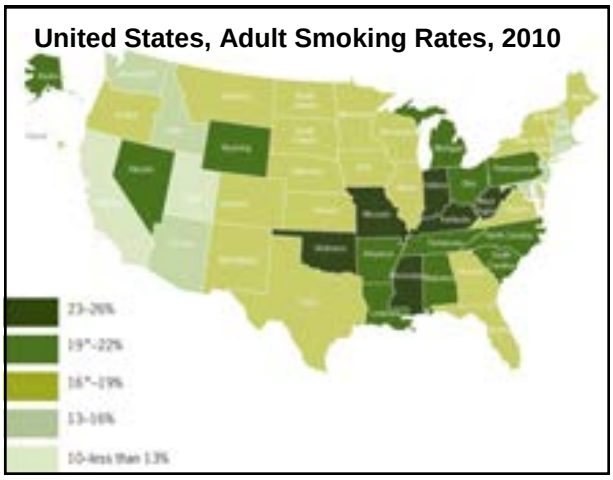
Whites overall report smoking more than blacks or Hispanics. The 2010 BRFSS showed that 17.7% of Houston-Baytown-Sugar Land MSA whites smoked, compared to 16.4% of blacks and 12.0% of Hispanics.

Men are also more likely to smoke than women in Harris County. In 2010, 20.7% of men were smokers, compared to 10.6% of women. In recent years the percent of female smokers has declined, while the percent of men is up from 2007.



Source: TDSHS BRFSS survey

Geographic Distribution



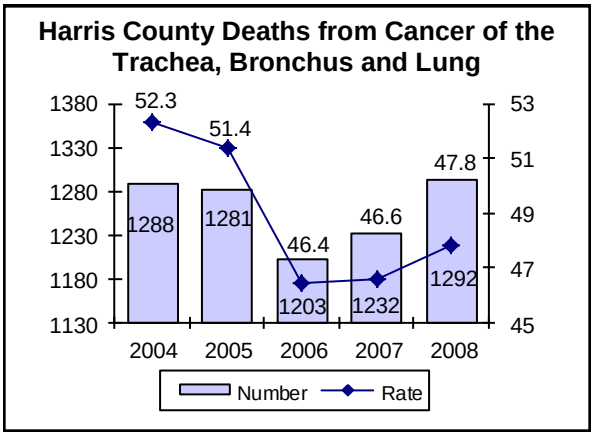
Source: Centers for Disease Control and Prevention

Economic Impact of Tobacco Use

Between 2001 and 2004, costs related to cigarette smoking in the U.S. were approximately $193 billion per year. This included an estimated $96 billion in health-care expenditures and $97 billion in productivity losses.[1]

For each pack of cigarettes sold, at least $10.47 is lost on productivity and health costs.[2] The annual burden to taxpayers from government spending due to smoking is more than $600 per household.[2]

Each year in Texas, smoking leads to more than 24,000 deaths and $12.2 billion in health care costs and lost productivity.[3]



Source: TDSHS. Rate is per 100,000 population

Healthy People 2020

Objective TU-1: Reduce tobacco use by adults

Adult Current Smokers	
Area	**Percent**
National Baseline 2008	20.6
Target for 2020	12.0
Houston-Baytown-Sugar Land MSA 2010	15.6
State of Texas 2010	15.8
United States 2010	17.1

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/tobacco/index.htm*
Fact Sheet for Youth: *www.cdc.gov/HealthyYouth/tobacco/facts.htm*
Tobacco Fact Sheets: *www.cdc.gov/tobacco/data_statistics/fact_sheets/index.htm*

American Lung Association: *www.lungusa.org*

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

1. CDC. Smoking-attributable mortality, years of potential life lost, and productivity losses: United States, 2000—2004. *MMWR* 2008;57(45):1226-28.
2. Guilfoyle J. Toll of tobacco in the United States of America. *Campaign for Tobacco-Free Kids*. August 2, 2011. Available at http://www.tobaccofreekids.org. Accessed September 12, 2011.
3. TDSHS. Texans and tobacco: a report to the 82nd Texas Legislature. January 2011. Available at http://www.dshs.state.tx.us/tobacco/reports.shtm. Accessed September 12, 2011.
4. CDC. Federal and state cigarette excise taxes --- United States, 1995—2009. *MMWR* 2009;58(19):524-527.

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 from a report by 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.

1.3.2 ETS contains many chemicals that can

100% Smokefree Ordinances In Large Texas Cities

City	Workplace	Restaurants	Freestanding Bars
Austin	Yes	Yes	Yes
Corpus Christi	Yes	Yes	Yes
Dallas	Yes	Yes	Yes
El Paso	Yes	Yes	Yes
Houston	Yes	Yes	Yes
San Antonio	Yes	Yes	Yes

Source: Texas DSHS Texas Smoke-free Ordinance Database at http://txshsord.coe.uh.edu, retrieved on 9-25-11.

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. Available at http://www.surgeongeneral.gov/library/secondhandsmoke. Accessed March 1, 2012.

Twenty-nine Texas cities have 100% smoke free workplaces, restaurants and freestanding bars, an increase from nine cities in 2006.

Cities include: Abilene, Alton, Austin, Baytown, Beaumont, Benbrook, College Station, Copperas Cove, Corpus Christi, Dallas, Eagle Pass, El Paso, Ennis, Flower Mound, Granbury, Highland Village, Horseshoe Bay, Houston, Laredo, Pearland, Plano, San Angelo, San Antonio, Socorro, Southlake, Tyler, University Park, Vernon and Victoria.

Source: Texas DSHS Texas Smoke-free Ordinance Database at http://www.dshs.state.tx.us/tobacco/ordinance.shtm

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.

Efforts to make Texas the nation's 30th state to enact laws prohibiting smoking in public places failed during the 82nd legislative session, 2011.

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 Association: *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. Available at oaspub.epa.gov/eims/eimscomm.getfile?p_download_id=36793Similar. Accessed March 1, 2012.

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 Type 2 diabetes, osteoporosis, arthritis and stroke.

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

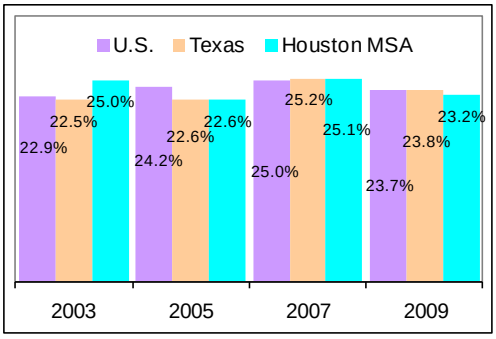
HDHHS Community Garden

Fruit and Vegetable Consumption

CDC recommends that all Americans consume a variety of fruits and vegetables each day. An individual's daily fruit and vegetable requirements depend on their caloric needs, which are determined by their age, sex, and physical activity level. According to the 2009 BRFSS, 23.2% of surveyed Harris County adults reported eating an average of five or more servings of fruits and vegetables a day, compared to 23.8% of Texas adults and 23.7% of U.S. adults.

Trends: Houston/Harris County 2003-2009

Percent of Adults Who Report Eating 5+ Fruits and Vegetables per Day



Source: TDSHS BRFSS survey

Fruit and vegetable intake may decline during the adolescent and teenage years—a time crucial to establishing a healthy lifestyle. In Texas, high school students report that they eat slightly fewer fruits and vegetables than their adult counterparts.

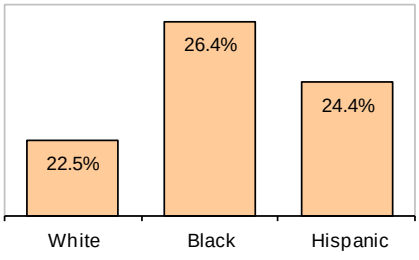
According to the 2009 Youth Risk Behavior Survey (YRBS), 21.3% of Texas high school students surveyed reported eating five or more servings of fruits and vegetables per day during the past seven days. In comparison, 22.3% of U.S. high school students reported consuming five or more servings per day in the past week.

Population Differences

2009 BRFSS survey data collected within the Houston-Baytown-Sugar Land MSA indicate that more females (27.5%) eat the recommended servings of fruits and vegetables than males (18.6%).

In addition, more African Americans reported eating 5+ fruits and vegetables daily, compared to Hispanics and whites. In the white population, 22.5% reported consuming the recommended servings, compared to 26.4% of black and 24.4% of Hispanic respondents.

Percent of Adults Who Eat 5+ Fruits and Vegetables per Day Houston-Baytown-Sugar Land MSA, 2009



Source: TDSHS BRFSS survey

1. Centers for Disease Control and Prevention. Fruits and veggies matter. Available at http://www.fruitsandveggiesmatter.gov/. Accessed September 25, 2011.

Nutrition Education for WIC Mothers

Economic Impact of Nutrition

Food insecurity, or the condition of not having access to an adequate supply of nutritious food to maintain good health, has both direct and indirect economic consequences. Children in food insecure homes are two-thirds more likely to be at risk for developmental delays, 30% more likely to have a history of hospitalization, twice as likely to have iron deficiency anemia, and 90% more likely to be reported in fair or poor health. The full economic impact also includes parental absenteeism and turnover.[2]

Pregnant women who are food insecure are more likely to give birth to preterm infants with fetal growth retardation. These mothers take longer maternity leaves, work fewer hours or leave the workforce altogether, resulting in a 32% drop in family income.[2]

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides nutrient-rich foods, nutrition education, and healthcare referrals for low-income pregnant, breastfeeding, or postpartum mothers and infants and children up to age five. Studies show that every dollar spent on WIC yields savings between $1.77 and $3.13 in healthcare costs during an infant's first 60 days of life. WIC reduces rates of low birth weight infants, improves the health of children under age three, and decreases the risk of developmental delays.[3]

Research shows that birth weight impacts both future education and earnings, supporting the cost-effectiveness of WIC interventions.[4]

2. Cook J, Jeng K. Child food insecurity: the economic impact on our nation. 2009. Available at http://feedingamerica.org/SiteFiles/child-economy-study.pdf. Accessed September 20, 2011.
3. Children's HealthWatch. WIC improves child health and school readiness. January 2010. Available at http://www.childrenshealthwatch.org/page/policyactionbriefs. Accessed September 30, 2011.
4. Black SE, Devereux PJ, Salvanes KG. From the cradle to the labor market? the effect of birth weight on adult outcomes. National Bureau of Economic Research. 2005. Available at http://www.nber.org/papers/w11796. Accessed October 2, 2011.

Healthy People 2020

Objective NWS-14: Increase the contribution of fruits to the diets of the population aged two years and older

Objective NWS-15: Increase the variety and contribution of vegetables to the diets of the population aged two years and older

5+ Fruits and Vegetables Daily in Adults

Area	Percent
Houston-Baytown-Sugar Land MSA 2009	23.2
State of Texas 2009	23.8
United States 2009	23.7

Public Health Actions

- Educate the community 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.
- Support policies to improve availability of nutritious foods in food deserts.

For More Information

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

CDC: Nutrition Information: *www.cdc.gov/nutrition/index.html*
Spanish Information: *www.cdc.gov/spanish/nutricion.html*

American Dietetic Association: *www.eatright.org*

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

Recipe for Success: *http://recipe4success.org/*

National Breastfeeding Promotion Campaign: *www.womenshealth.gov/breastfeeding/government-in-action/national-breastfeeding-campaign/*

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

HCPHES: *www.hcphes.org*

Physical Activity

Overview

Lack of physical activity, combined with poor nutrition, is a leading cause of preventable death, second only to tobacco use according to CDC. These behaviors lead to overweight and obesity, and are linked with chronic diseases such as heart disease, diabetes and cancer. Conversely, being active can help maintain a healthy weight and lower the risk of these chronic conditions and others, including osteoporosis, arthritis and stroke. In addition, CDC reports that physical activity can improve mental health, especially in decreasing depressive symptoms.

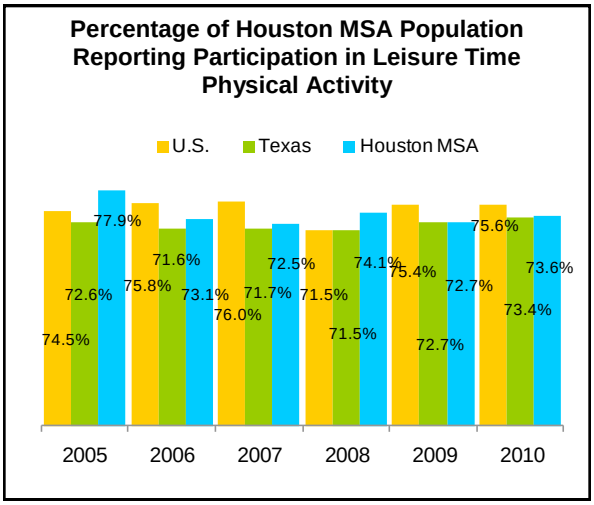
CDC and the American College of Sports Medicine recommend that adults should participate in moderate to vigorous physical activity for at least 30 minutes on most days of the week. The 2010 Texas BRFSS data show that 23.7% of surveyed adults in the Houston-Baytown-Sugar Land MSA reported participating in no leisure-time physical activity during the past month, compared with 26.6% of Texas adults and 24.4% 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]

The 2007 Youth Risk Behavior Survey data show that 86% of Houston high school students did not attend physical education classes daily, compared to high school students in Texas (60%) and the U.S. (70%). 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 2005-2010

Percentage of Houston MSA Population Reporting Participation in Leisure Time Physical Activity



Source: TDSHS, BRFSS survey

Access to recreational facilities can increase leisure time physical activity. According to the County Health Rankings measures, in 2008, Harris County had 299 recreational facilities, or 8 facilities for each 100,000 population. This number of facilities for the county population ranked Harris County at 7th among all Texas counties. In comparison, Dallas County, Bexar County (San Antonio), and Tarrant County (Fort Worth) all have 8 facilities per 100,000, while Travis County (Austin) has 12.[3]

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/ and at the TDSHS Obesity Prevention website at http://www.dshs.state.tx.us/obesity/NPAOPdata.shtm. Accessed January 31, 2012.
2. Texas Education Code §28.004.
3. County Health Rankings website. Available at http://www.countyhealthrankings.org/texas/harris. Accessed January 31, 2012.

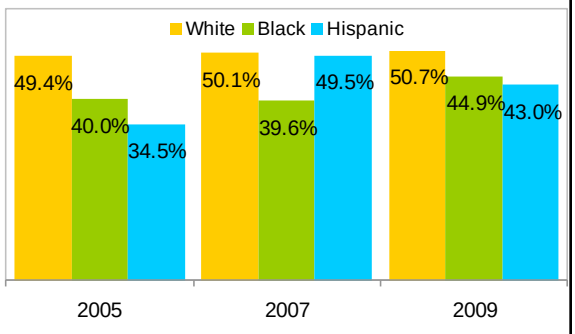
Population Differences

According to 2009 BRFSS measures for the Houston/Harris County area, more men (46.9%) than women (44.6%) met the Healthy People (2010) goal for physical activity .

Education also makes a difference. For college graduates, 51.8% reach the recommended activity levels, compared to 40.6% of high school graduates and 40.2% 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 38.0% meet the recommended level of activity, compared to 46.7% with income of $25,000 through $49,999, and 50.9% with income of $50,000 or more.

Age differences are also apparent. In 2009, middle aged adults reported more physical activity compared to younger age groups; 71.7% of adults age 18-29 participated in leisure time physical activity, compared to 72.6% of those aged 30-44 years, 72.5% of those ages 45-64, and 74.6% of those aged 65+ years.

Percentage of Houston MSA Population Meeting Recommended Moderate or Vigorous Physical Activity



Source: TDSHS, BRFSS survey

Economic Impact of Physical Activity

Physical inactivity is associated with a number of health problems and chronic conditions which place a significant burden on the U.S. economy each year. According to a recent study, estimated direct medical costs related to physical inactivity such as heart disease, Type 2 diabetes and obesity were $76 billion annually.[4]

Additional costs would include decreased worker productivity and time missed from work and school.[4]

Healthy People 2020

Objective PA-1: Reduce the proportion of adults who engage in no leisure-time physical activity.

Objective PA-2: Increase the proportion of adults who meet current Federal physical activity guidelines for aerobic physical activity and muscle-strengthening activity.

Meet Recommendations for Moderate Physical Activity

Area	Percent
National Baseline 2008	36.2
Target for 2020	32.6
Houston-Baytown-Sugar Land MSA 2009	45.7
State of Texas 2009	48.1
United States 2009	49.2

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

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

CDC: *www.cdc.gov/physicalactivity*

CDC Information in Spanish: *www.cdc.gov/spanish/az/a.html*

American Heart Association: *www.americanheart.org*

HCPHES: *www.hcphes.org*

4. American College of Sports Medicine. *Physical inactivity and obesity translates into economic impact: experts profile the cost to US health system*; 2007. Available at http://www.acsm.org. Accessed September 12, 2011.

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 34% of U.S. adults over age 20 are obese, more than 72 million people. Among young people, the percentage who are overweight has more than tripled since 1980.

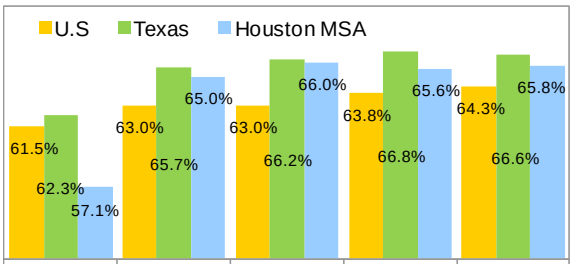
Among children and teens aged 6–19 years, more than nine million, or 16 percent, are considered overweight. The NCHS reports that being overweight or obese increases the risk of many diseases and conditions, including:

- 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 2020 is to reduce the prevalence of obesity among adults to less than 30.6%, current data indicate that the situation is worsening rather than improving.

Trends: Houston/Harris County 2006-2010

Percent Overweight/Obese* Adults, Houston MSA



*BMI of 25 or greater
Source: TDSHS BRFSS survey

The BRFSS 2010 reports that 65.8% of surveyed adults in the Houston-Baytown-Sugar Land MSA were overweight or obese, compared to 66.6% of Texas adults and 64.3% nationwide. The general population is becoming increasingly overweight/obese.

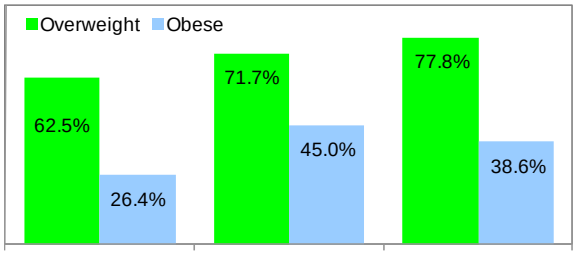
***Overweight** is defined as ≥ 95th percentile based on BMI charts.*
***At risk for overweight** is defined as ≥ 85th but < 95th percentile based on BMI charts.*

Population Differences

BRFSS data showed that males in the Houston-Baytown-Sugar Land MSA area are more likely (74.3%) to be overweight or obese than females (56.8%). Among blacks, 71.7% were overweight or obese, compared with 77.8% of Hispanics and 62.5% of whites. Only 34.2% of the total adult population was not in the overweight/obese category.

Older adults are more likely to be overweight or obese. The lowest percentage is for ages 18-29 (43.6% are overweight/obese) compared to ages 30-44 (69.4%), ages 45-64 (69.2%), and ages 65+ (69.4%).

Prevalence of Overweight vs. Obese* Adults in Houston-Baytown-Sugar Land MSA 2010



*Overweight is BMI of ≥25 and <30, Obese is BMI of ≥30
Source: TDSHS BRFSS survey

Exercise helps to combat obesity. This outdoor gym in Aldine was built by HCPHES, the Aldine-Greenspoint YMCA, and other local partners with CDC ACHIEVE funds.

Economic Impact of Obesity

Overweight and obese individuals are more likely to develop Type 2 diabetes, hypertension, coronary heart disease, gallbladder disease, osteoarthritis and cancers of the breast, colon and endometrium. Overall, the direct costs of inactivity and obesity account for 9.4% of the nation health care expenditures in the U.S.[1] These direct costs associated with obesity were estimated to be $147 billion nationally per year in 2008.[2] If current trends continue, 51% of the adult population will be obese by 2030, and health care costs related to overweight and obesity could range from $860 - $956 billion.[3]

In Texas, obesity rates have risen from a prevalence below 20% in 1998 to 31.0% in 2010.[4] In 2009, nearly two-thirds (66.8%) of adults in Texas were either overweight or obese. If the state-level trend continues, expenditures will increase from $10.5 billion at present to $39 billion by 2040.[5]

The chart below, from the CDC website, provides an example of the BMI classification for a 5' 9" adult according to weight. To calculate your BMI (adults) use the following formula: Weight (lb) / Height (in)^2 x 703.[6]

Height	Weight	BMI	Considered
5' 9"	124 lbs or less	Below 18.5	Underweight
	125 lbs to 168	18.5 to 24.9	Healthy weight
	169 lbs to 202	25.0 to 29.9	Overweight
	203 lbs or more	30 or higher	Obese

Healthy People 2020

Objective NWS-9 Reduce the proportion of adults who are obese

Adults Aged 20 and Older Identified as Obese	
Area	**Percent**
National Baseline 2005-08	34.0
Target for 2020	30.6
Houston-Baytown-Sugar Land MSA 2010	28.9
State of Texas 2010	31.7
United States 2010	28.9

Public Health Actions

- Inform, educate and empower people about health issues through community health education regarding the consequences of obesity and the importance of physical activity and nutrition.
- Develop policies and plans that promote environments where all residents have access to good nutrition and opportunities for physical activity.

For More Information

Centers for Disease Control and Prevention: *www.cdc.gov/obesity/index.html*

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/dshstoday/obesity.shtm*

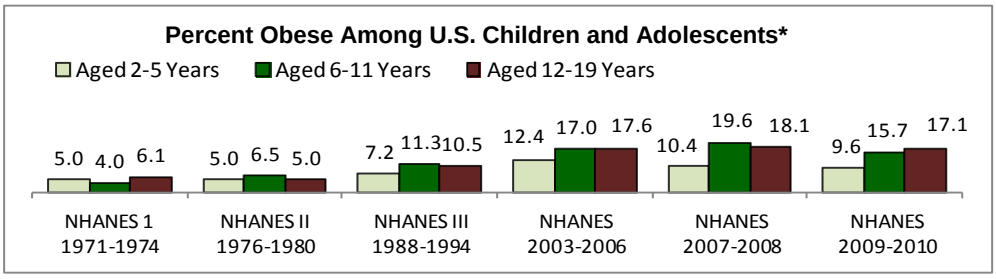
Harris County Public Health and Environmental Services: *www.hcphes.org*

1. Colditz G. Economic costs of obesity and inactivity. *Medicine and Science in Sports and Exercise*. 1999;31(11 suppl):S663-7. Available at http://journals.lww.com/acsm-msse/Abstract/1999/11001/Economic_costs_of_obesity_and_inactivity.26.aspx. Accessed March 1, 2012.
2. Finkestein E, Trogdon J, Cohen J, Dietz W. Annual medical spending attributable to obesity: Payer-and service-specific estimates. Health Affairs. 2009;28(5):w822-w831. Available at http://content.healthaffairs.org/content/28/5/w822.abstract. Accessed March 1, 2012.
3. Wang Y, Beydoun M, Liang L, Caballero B, Kumanyika S. Will all Americans become overweight or obese? Estimating the progression and costs of the US obesity epidemic. *Obesity*. 2008;16:2323-2330. Available at http://www.nature.com/oby/journal/v16/n10/full/oby2008351a.html. Accessed March 1, 2012.
4. CDC. Behavioral risk factor surveillance system (BRFSS). Available at http://apps.nccd.cdc.gov/BRFSS-SMART/SelMMSAPrevData.asp. Accessed September 13, 2011.
5. Texas Department of State Health Services. Texas Overweight and Obesity Data Sheet. May 2010. Available at www.dshs.state.tx.us/obesity/pdf/DataFacts.pdf. Accessed September 13, 2011.
6. CDC, Division of Nutrition, Physical Activity and Obesity. Adult obesity. Available at http://www.cdc.gov/obesity/. Accessed January, 2012.

Overweight in Youth

Overview

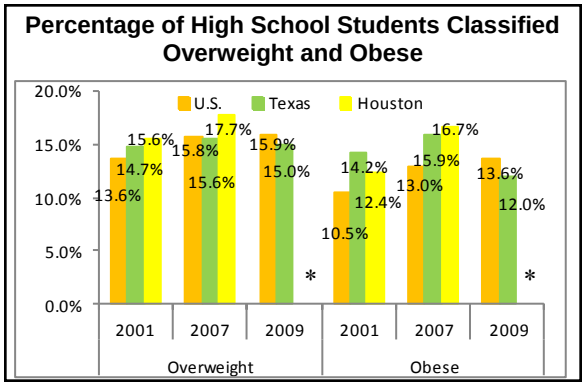
The rate of childhood overweight is increasing yearly. Studies have also shown that overweight children are more likely to become obese adults.[1] The CDC reports numerous consequences associated with pediatric overweight, including heart disease, high blood cholesterol levels, high blood pressure, gallbladder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



*Aged 2 –19 Years, BMI at the 95th percentile and above. From the National Health and Nutrition Examination Surveys

Source: CDC

Trends: Houston/Texas 2000-2009



Source: CDC Youth Risk Behavior Surveillance System Survey
** Due to insufficient numbers 2009 data for Houston MSA was not available*

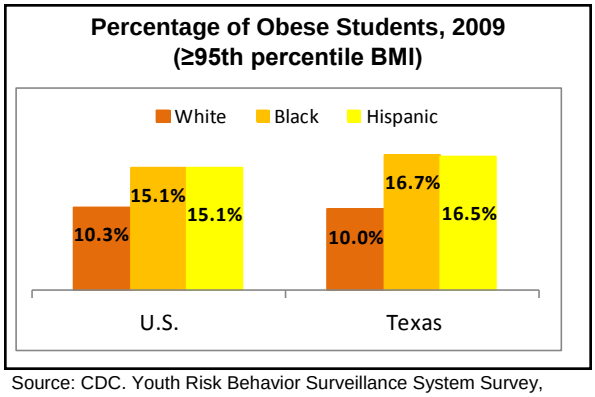
The 2009 Youth Risk Behavior Survey conducted by CDC reported that 12.0% of high school students in Texas are obese (BMI greater than or equal to the 95th percentile) and 78.7% ate fewer than five servings of fruits and vegetables per day during the past seven days.

Since 1980, obesity prevalence among children and adolescents has almost tripled.[1] Higher rates of child overweight are apparent in lower income groups, where families generally have less access to healthy food in addition to fewer opportunities for physical activity.[1]

Population Differences

Significant racial and ethnic disparities in obesity prevalence can be seen among U.S. children and adolescents. In 2007-2008, adolescent measures showed that Mexican-American boys were most likely to be obese (26.8%) compared to black boys (19.8%) and white boys (16.7%).

Among female adolescents, black girls were most likely to be obese (29.2%) compared to Mexican-American girls (17.4%) or white girls (14.5%).[1]

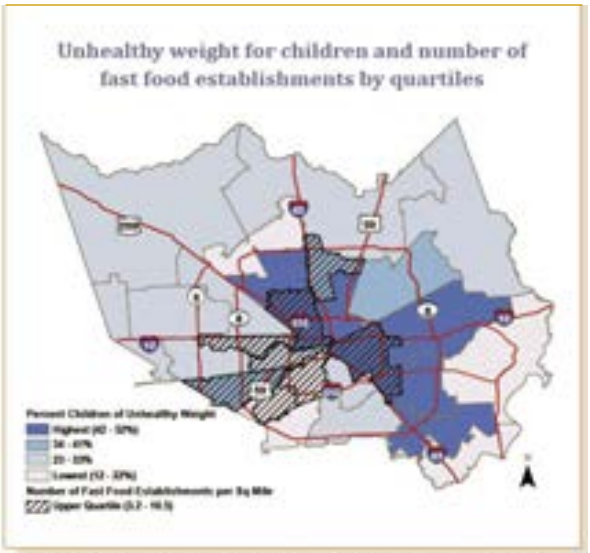


Source: CDC. Youth Risk Behavior Surveillance System Survey, 2009.

1. CDC Division of Nutrition, Physical Activity and Obesity website. Available at http://www.cdc.gov/obesity/childhood/index.html. Accessed January 31, 2012.

Geographic Differences

The map below shows high areas of overweight/obesity in children aged 12 to 17 (dark blue) compared to high concentration of fast food establishments (hatched areas).



Note: "Unhealthy weight" includes overweight and obese and is defined as a BMI at or above the 85th percentile for children of the same age and sex. Fast food outlets include three reference groups: cafeterias, limited service restaurants and snack and nonalcoholic beverage bars. Our source for fast food outlets is InfoUSA 2010 Business Dataset.

Source: Health of Houston Survey. *HHS2010 A First Look*. Houston, TX: Institute for Health Policy, UT School of Public Health, 2011, p.13.

Economic Impact of Overweight in Children

The financial costs associated with overweight in children are significant. Obese adolescents have 30% higher mortality rates compared to normal weight peers. Among 6-17 year olds in 2003, hospital costs associated with obesity-related diseases were $127 million.[2] If overweight persists into adulthood for today's children, it is projected that healthcare costs could exceed $950 billion by 2030.[3]

Beyond health care costs, socio-economic impacts and related costs are evident. Overweight adolescents are less likely as adults to receive education beyond high school, and more likely to earn lower wages or be unemployed, on welfare and single —resulting in a cumulative social and economic disadvantages.[4]

Healthy People 2020

Objective NWS-10: Reduce the proportion of children and adolescents who are considered obese

Obesity in Adolescents Aged 12 to 19 Years

Area	Percent
National Baseline 2005-08	17.9
Target for 2020	16.1
City of Houston 2007*	16.7
State of Texas 2009*	13.6
United States 2008	17.0

* Grades 9-12

Public Health Actions

- Develop plans and programs that support individual and community health through education and other efforts to improve nutrition and physical activity for youth.
- Inform and educate people about health issues by promoting good nutrition and exercise for Houston/Harris County residents.

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

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*

Fruits and Veggies—More Matters: *www.fruitsandveggiesmorematters.org*

Let's Move: *http://www.letsmove.gov/*

HCPHES: *www.hcphes.org*

2. Wang G, Dietz WH. Economic burden of obesity in youths aged 6 to 17 years: 1979-1999. *Pediatrics*. 2002;109(6):1195. Available at http://www.ncbi.nlm.nih.gov/pubmed/11986487. Accessed January 15, 2012.
3. Wang Y, Beydoun M, Liang L, Caballero B, Kumanyika S. Will all Americans become overweight or obese? Estimating the progression and costs of the US obesity epidemic. *Obesity*. 2008;16:2323-2330. Available at http://www.nature.com/oby/journal/v16/n10/abs/oby2008351a.html. Accessed January 15, 2012.
4. Clark PJ, O'Malley PM, Schulenberg JE, Johnston LD. Midllife health and socioeconomic consequences of persistent overweight across early adulthood: findings from a national survey of American adults (1986-2008). *American Journal of Epidemiology*. 2010;172:540-548. Available at http://aje.oxfordjournals.org/content/172/5/540.full. Accessed January 15, 2012. http://aje.oxfordjournals.org/content/172/5/540.full

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, drowning, 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 TDSHS, in 2008 motor vehicle 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. In 2009, the Harris County Child Fatality Review Team (HCCFRT) identified 55 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."

The largest percentage of family violence reports in Texas are from married spouses.[1] The Texas Department of Public Safety reported that 34,913 arrests were made for family violence in 2010. Those local departments making the most arrests were:

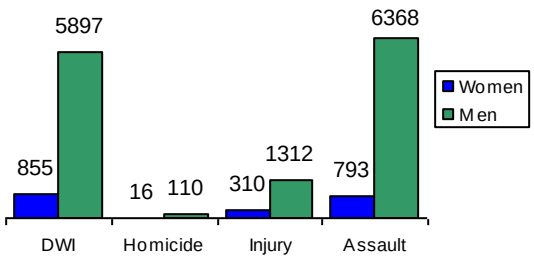
- Harris County Sheriff's Office: 10,268
- Houston Police Department: 21,634
- Pasadena Police Department: 1,248
- Baytown Police Department: 484[1]

Homicide

Homicide was the 12th leading cause of death in Harris County in 2008, with 388 deaths—a rate of 9.3 per 100,000 persons.

According to data from the HCCFRT, 53 homicide victims were children under age 18 in Harris County in 2009. Thirty-six percent of these were teens aged 15-17. Sixty-four percent of homicides were children younger than 15 years of age. Thirteen children, aged 13-17 committed suicide in 2009.

Violent Crime Arrests in Harris County, 2008



Source: Harris County Criminal Justice Records

Violent Crime

High levels of violent crime impact physical safety and psychological well-being. Neighborhoods with high rates of crime rates can also deter residents from pursuing healthy behaviors such as exercising out-of-doors.

The rate of violent crime in Harris County was evaluated by the County Health Rankings Project.[2] The violent crime rate for 2006-2008 summarized information from state and national criminal justice reports. Harris County's annual rate was 849 per 100,000 population, placing it among the highest in Texas. Only two counties, Matagora and Willacy, had higher rates of violent crime, at 888 and 1,177 respectively.

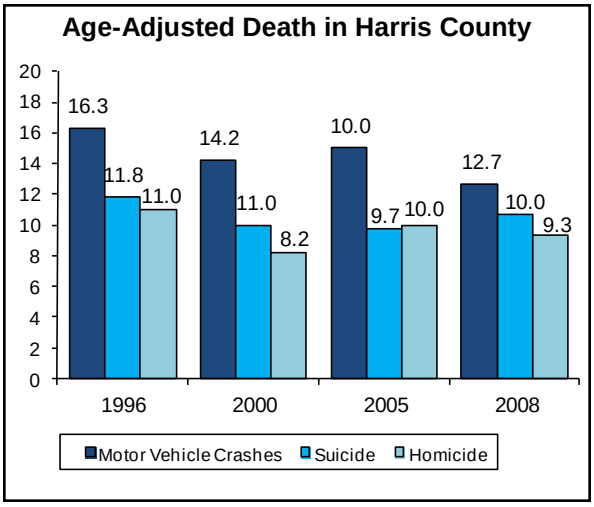
Suicide

Suicide was the cause of death in 419 cases in Harris County in 2008, which translates to a rate of 10.7 per 100,000 persons.

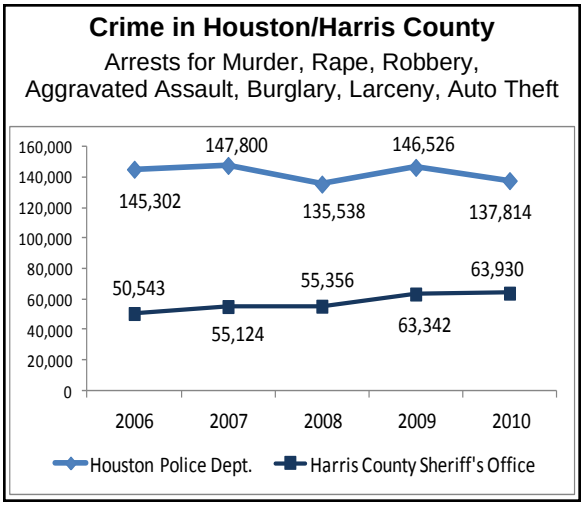
The HCCFRT reported 13 deaths from suicide among Harris County youth aged 13-17 during 2009. Asphyxiation due to hanging was associated with 62% of suicide cases and firearms were used in 30%. The most common ages for child suicide in 2009 were 16 and 17, with 77% of suicide deaths in this age range. Age 14 was next, with 15% deaths. The suicide death rate among male youth in Harris County is 2.3 deaths per 100,000 persons, twice the rate as females.

1. Texas Department of Public Safety. The Texas crime report for 2010. Available at http://www.txdps.state.tx.us/administration/crime_records/pages/crimestatistics.htm#2009. Accessed January 31, 2012.
2. County Health Rankings website. Report for Harris County, Texas. Available at http://www.countyhealthrankings.org/. Accessed January 31, 2012.

Trends: Houston/Harris County



Source: TDSHS Vital Statistics.
Age adjusted to the 2000 standard population



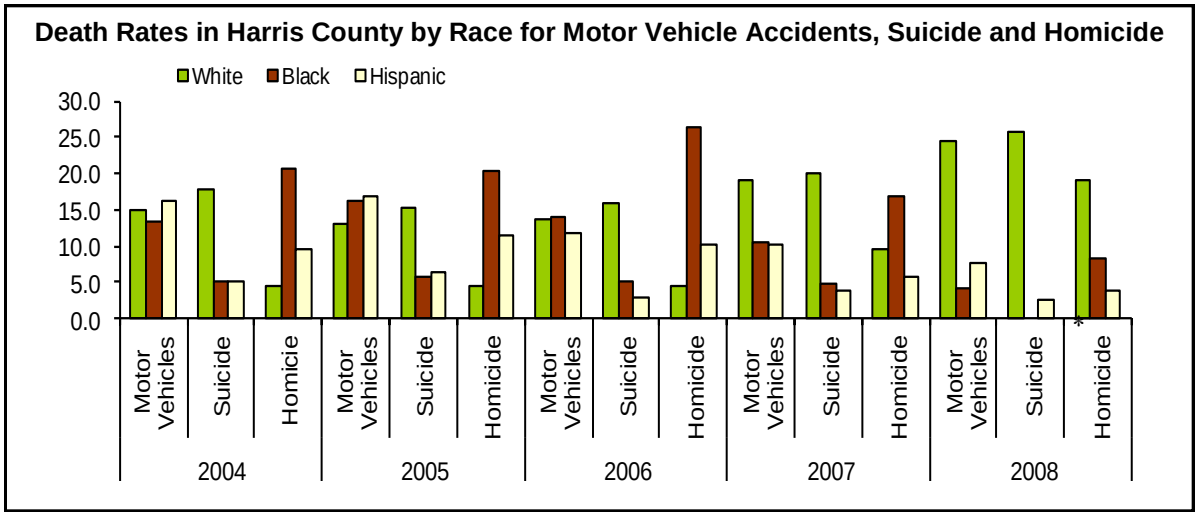
Source: Texas Dept. of Public Safety Crime Reports, available at www.txdps.state.tx.us/

Population Differences

Homicide rates vary widely among demographic groups in Harris County, occurring more frequently among males, both black and Hispanic. Of the 388 deaths due to homicides in 2008, the rates per 100,000 were 13.0 for black men, 5.4 for Hispanic men, and 30.2 for white men. Males more frequently died of homicide, a rate of 14.2 compared to 4.1 for women. The overall homicide rate in Harris County was 9.3 per 100,000.

Suicides occur more frequently among white male residents. Of the 410 Harris County suicides in 2008, 268 (65%) occurred among white males, a rate of 41.1 per 100,000. The suicide rate was 4.5 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 of other races, with a rate of 11.0. There were too few suicides among black and Hispanic females to calculate their rates.

Combining homicides, injuries and assaults shows the highest rate of violent acts in 2008 occurred among blacks (313 per 100,000 blacks), followed by whites (256 per 100,000 whites). Hispanics and Asian adults had the lowest rate of violent acts (43 and 36 per 100,000, respectively). Family violence rates were highest for blacks (173 per 100,000), followed by whites (132 per 100,000), Hispanics (23 per 100,000), and Asians (20 per 100,000).



Rate per 100,000 population, age adjusted to the 2000 standard population.

Source: TDSHS Vital Statistics. * In 2008, there were too few suicides among blacks in Harris County to calculate a rate.

Injury Risk Behaviors, cont.

Houston and Harris County, 2005-2007: All Motor Vehicle Related Crashes Pedestrians & Pedacyclists, Age 0-15 years

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

Economic Impact of Injuries

The burden of injury and violence totals more than $406 billion annually in medical costs and lost productivity in the U.S.[1] States and localities absorb much of the expense of injuries by providing emergency care for uninsured, health and workers' compensation benefits for employees, welfare services for children, and enforcement of state and local public safety laws.

The total economic impact of occupational accidents was estimated to be more than $215 billion in 2008 in the U.S.[2]

The five most common categories of injuries in Texas are falls, motor vehicle traffic, intentional assault, other transportation, and struck by/against. Falls and motor vehicle traffic accounted for the highest frequencies and rates of traumatic brain injury hospitalizations (TBI). Total hospital charges for TBI associated hospitalizations were $3.8 billion from 2004 to 2007 in Texas. Cases for which Medicare and Medicaid were the primary payer source accounted for $1 billion in hospital charges.[3]

Healthy People 2020

Objective IVP-11: Reduce unintentional injury deaths

Death Rate from Unintentional Injuries per 100,000

Area	Rate
National Baseline 2007	40.0
Target for 2020	36.0
Harris County 2008	41.1
State of Texas 2008	41.4
United States 2007	40.0

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 Harris County Child Fatality Review Team (HCCFRT), which evaluates child deaths and can refer cases to law enforcement or physician review as needed.
- Inform people about injury risk behaviors by educating professionals and the public about suicide warning signs, the importance of using seatbelts, how to prevent falls, and other safety and public health prevention measures.

For More Information

Relocation Essentials/Crime Reports: *www.relocationessentials.com/aff/www/tools/crime/crime.aspx*

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

Texas DSHS for morbidity, mortality, risk data *www.dshs.state.tx.us/injury/data/*

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. National Safety Council, Injury & Death Statistics. Estimating the costs of unintentional injuries. NSC Website. Available at http://www.nsc.org/news_resources/injury_and_death_statistics/Pages/EstimatingtheCostsofUnintentionalInjuries.aspx. Accessed December 15, 2011.
3. Texas Department of State Health Services, Injury Center, Data and Statistics. Texas TBI Hospitalizations 2004-2007. TDSHS Website. Available at http://www.dshs.state.tx.us/injury/data/. Accessed December 15, 2011.

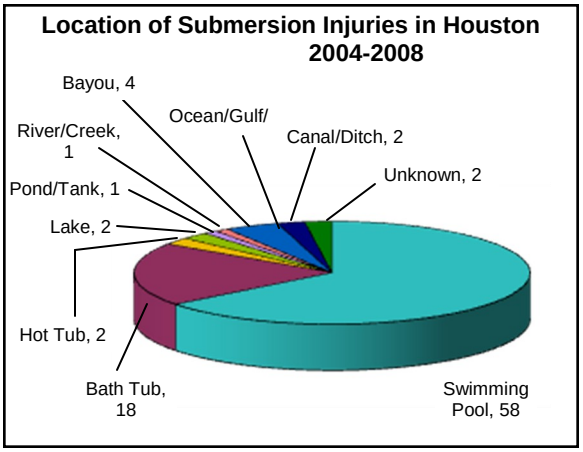
Injury Risk/Submersion

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.[4] A near drowning is classified as victim survival for at least 24 hours *after* submersion in water. According to the Centers for Disease Control and Prevention about 10 people die each day from unintentional drowning.

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

Drowning is the sixth 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.[5]

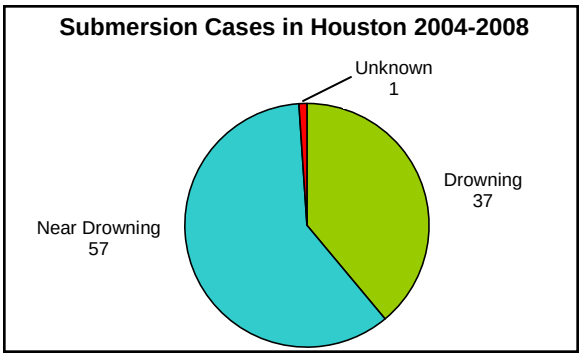


Source: HDHHS case files

Trends: Houston, Texas 2004-2008

Children between the ages of one and four account for 44% of all submersion injuries in Houston. This has been a consistent pattern in the period from 2004 to 2008 and also applies across all racial/ethnic categories.[6] This pattern can also be seen in state and national observations.[7]

The majority (66.3%) of local submersion injuries occurred in the summer months between May and August, with the peak number of submersion injuries occurring in the month of July and followed by June.



Source: HDHHS case files

Population Differences

During years 1995-1999, the highest number of drowning cases occurred among blacks. This has changed in recent years. In the years 2004-2008, the frequency of submersion incidents in Houston occurred equally among Hispanics and blacks with 34 events compared to 33 events, respectively. Victims are more likely to be male, young or adolescent.[6] TDSHS reported in 2008 in Harris County that persons under the age of 14 accounted for 26% of accidental drowning deaths.

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.

4. Texas Department of Health. Submersions occurring in swimming pools, 1998. Texas Department of Health, 1999 Epidemiology Annual Report. 1999.
5. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics. Accessed April 6, 2011. Available from: URL: http://www.cdc.gov/injury/wisqars
6. Bureau of Epidemiology, Houston Department of Health and Human Services.
7. Center for Disease Control and Prevention. Safe Swimming Pools. Available at http://www.cdc.gov/Features/dsSafeSwimmingPool/. Accessed October, 2011.

Child Abuse and Neglect

Photo courtesy of CDC

Overview

According to the Texas KIDS COUNT 2009 Annual Data Book, Texas' future economic and social potentials are linked to today's child population. Houston/Harris County boasts 1,099,750 children.[1] It is important for this child population to grow up healthy.

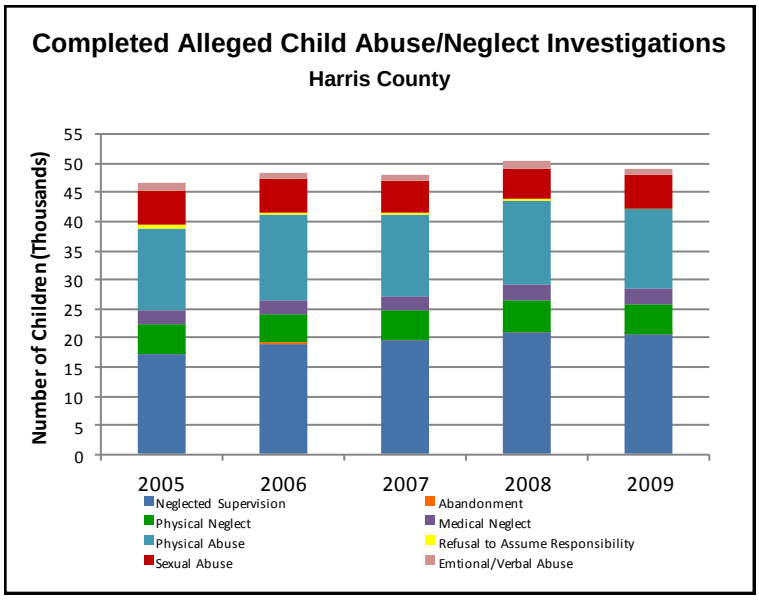
Abuse and neglect influence a child's physical and psychological health. Maltreatment disrupts proper brain development, which can lead to sleep disorders, attention deficit disorder and hyperactivity.[2] In addition, abused children are more likely as adults to have alcoholism, drug abuse, eating disorders, 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 sexually abused before the age of 18. Since 2000, the Harris County Children's Assessment Center provided intervention and treatment services for more than 50,000 child sexual abuse victims and their non-offending caregivers.[4] 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.

Trends: Houston/Harris County 2005-2009

The number of alleged abuse or neglect cases assigned to Harris County Child Protective Services has steadily increased, from 25,915 in 2006 to 35,729 in 2010. Of these investigations, 10%-15% consistently result in removal of children from the home, and 30-35% of investigated cases are resolved through family-based safety services, such as parenting classes and family counseling.[5]

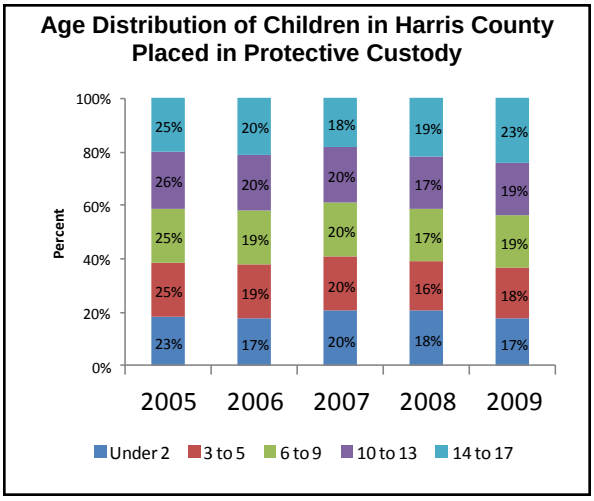
Despite these high numbers, the rate per 1,000 of children in Harris County confirmed as having been abused or neglected for FY2010 is 5.9, compared to 10.2 per 1,000 for the State of Texas.[5]



Source: Harris County Child Protective Services, Annual Reports 2005 through 2009

In August of 2010, 5,640 Harris County children were in protective custody and 196 foster and foster/adopt homes.[5] In FY2010, 196 adoptions were completed in Harris County, and an additional 1,614 children were waiting to be adopted.[5]

1. Texas KIDS COUNT. *Harris County Profile*. Available at http://datacenter.kidscount.org/data/bystate/stateprofile.aspx?state=TX&loc=6615. Accessed September 26, 2011.
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. Available at http://www.acf.hhs.gov/programs/cb/pubs/cm03/index.htm. Accessed March 1, 2012.
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. Available at http://www.ncbi.nlm.nih.gov/pubmed/9635069. Accessed March 1, 2012.
4. The Children's Assessment Center website. Available at http://www.cachouston.org/. Accessed January 18, 2012.
5. CPS in Harris County Annual Report, 2010. Available at http://www.hc-ps.org/2011CPSAnnRep.pdf. Accessed January 18, 2012.

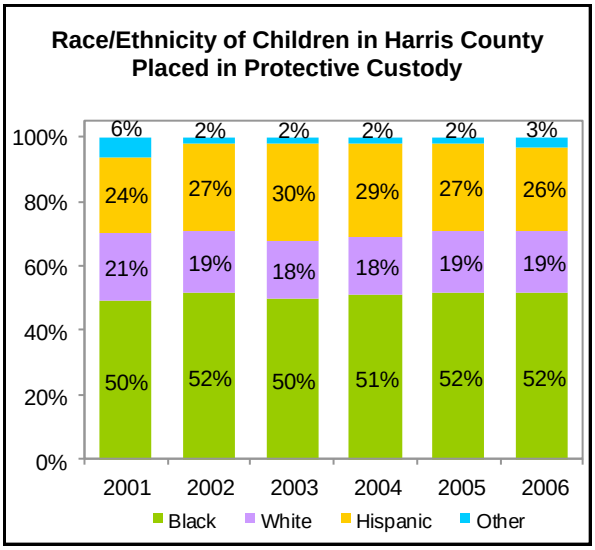


Source: Harris County Child Protective Services, Annual Reports

Population Differences

Instances of child abuse are not specific to a victim's age or gender. From 2005 to 2009, the age distribution of children placed in protection custody in Harris County has remained fairly stable. A similar pattern is seen with respect to the gender of the children, which has been split equally between boys and girls most years.

Over the five year period, the ethnic proportion of children put into protective custody has remained relatively 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 2020

Objective IVP-37: Reduce nonfatal child maltreatment

Maltreatment of Children	
Area	**Rate***
National Baseline 2008	9.4
Target for 2020	8.5
Houston/Harris County 2010	5.9
State of Texas 2010	10.2
United States 2009	9.3
*Rate is reported cases per 1,000 children under 18 years	

Economic Impact of Child Abuse

The estimated annual cost of child abuse and neglect in the United States for 2007 was $104 billion**.** Direct costs ($33.1 billion) include hospitalization, continuing health care, law enforcement and judicial costs. Indirect costs ($70.7 billion) include psychiatric care, juvenile delinquency and adult prosecution.[6] Texas received $711million federal funds in 2008 to pay for child protection and foster care.[7]

Public Health Actions

- Assure quality 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/Harris County 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*

Collaborative for Children: *www.collabforchildren.org*

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

6. Wang CT, Holton J. Total estimated cost of child abuse and neglect In the United States. Prevent Child Abuse Website. Available at \http://www.preventchildabuse.org/about_us/media_releases/pcaa_pew_economic_impact_study_final.pdf. Accessed December 15, 2011.
7. Center for Public Policy Priorities, Policy Brief. Federal Funds for Texas CPS. CPPP Website. Available at http://www.cppp.org/files/4/Fed%20Funding%2007.pdf. Accessed December 15, 2011.

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 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.

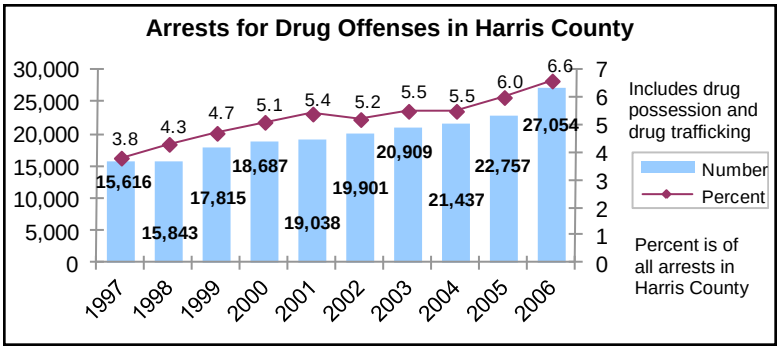
CDC reports that excessive alcohol use is the 3rd leading lifestyle-related cause of death for people in the U.S. each year, accounting for 79,000 deaths annually. Linked with cirrhosis of the liver, motor vehicle crashes, injuries, cancer and drowning, alcohol was involved in 32% of traffic deaths in 2009. In the same year, Harris County had the highest rate of alcohol-related traffic deaths among the nation's most populous counties.

Illegal Drug Use

In the region of Texas that includes Harris County, from 2006-2008 an estimated 8.9% of people aged 12-17 years and 5.9% of people aged 18 and older used an illicit substance in the past month, compared to 8.7% and 6.1% respectively, in Texas. Of local residents aged 12-17 and those 18 and older, 5.5% and 3.9%, respectively, are estimated to have used marijuana in the past month. Of these same populations, 5.1% and 3.4% used an illicit drug other than marijuana in the past month.[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 2002-2006

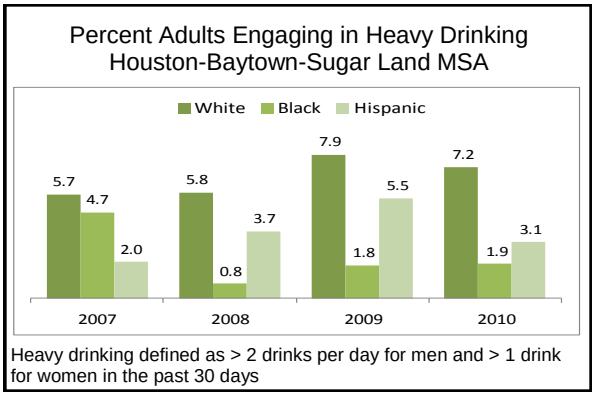


Source: Texas Commission on Alcohol and Drug Abuse

The chart to the left shows rising numbers of arrests for drug offenses in Harris County. In contrast, the BRFSS survey showed that in 2010, fewer residents in the Houston-Baytown-Sugar Land MSA (14.9%) reported binge drinking, defined as having five or more drinks on one occasion, a decrease from 17.2% in 2002.

Population Differences

Heavy drinking, defined as more than two drinks per day for men and more than one drink per day for women, is a larger problem for the white population in the Houston MSA, with rates over twice as high as other groups in 2010, according to BRFSS measures. White are also more likely to be binge drinkers (17.3%) compared to blacks (9.0%) or Hispanics (15.8%).

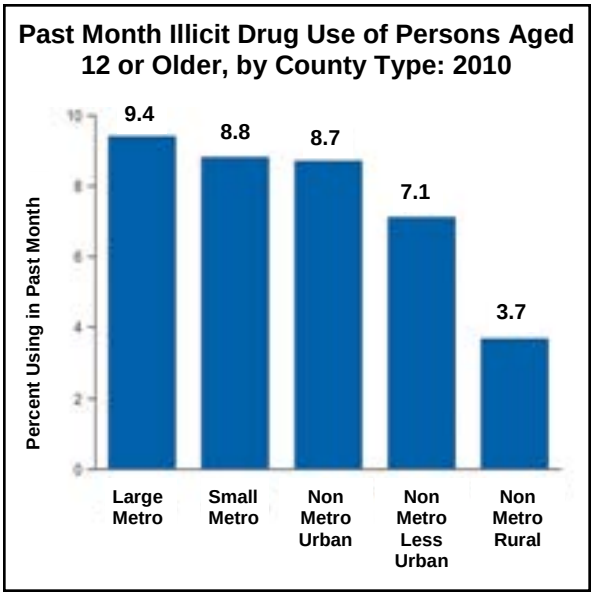


Heavy drinking defined as > 2 drinks per day for men and > 1 drink for women in the past 30 days

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#heavyDrinking. Accessed September 28,2011.
3. U.S. Substance Abuse and Mental Health Services Administration's National Survey on Drug Use and Health. Available at https://nsduhweb.rti.org/. Accessed September 28, 2011.

Geographic Distribution



Source: National Survey on Drug Use and Health, SAMHSA, 2010.

Economic Impact of Alcohol and Drug Use

Every resident of the U.S. carries the economic burden of alcohol and drug use. The cost of excessive alcohol consumption in the U.S. was estimated at $223.5 billion in 2006. This cost, when calculated per person, equals approximately $746 for each U.S. resident.[4]

The total economic cost of alcohol and drug abuse in Texas was $25.9 billion for 2000. Alcohol abuse cost accounted for $16.4 billion (63% of total cost), while drug abuse or dependency accounted for $9.5 billion (37% of total cost). At the same time, just $127 million of state and federal funding was dedicated to prevention services. The cost of alcohol and drug abuse in Texas for 2000 translates to $1,244 per each man, woman, and child in the state and exceeds the national average.[5]

Employee Assistance Programs (EAP) that provide education, early intervention, and referral of employees with substance abuse problems reduce cost associated with employees' alcohol and drug use. For every dollar invested in an EAP, employers generally save $5 to $16.[6]

Healthy People 2020

Objective SA-12: Reduce drug-induced deaths.

Rate of Drug-Induced Death per 100,000	
Area	**Rate**
National Baseline 2007	12.6
Target for 2020	11.3
Harris County 2008	11.3
State of Texas 2007	9.8
United States 2007	12.7

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 2010, 14.3% of surveyed Harris County residents reported binge drinking, which is five or more drinks on one occasion for males, and four or more drinks for females. ——CDC BRFSS

For More Information

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

Council on Alcohol and Drugs Houston: *www.council-houston.org/Public/index.asp*

Alcoholics Anonymous: *www.aahouston.org*

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

4. Bourchery EE, Harwood HJ, Sacks JJ, Simon CJ. Economic costs of excessive alcohol consumption in the U.S [abstract]. *American Journal of Preventive Medicine*. 2011;41(5):516-524. http://www.ncbi.nlm.nih.gov/pubmed/22011424. Accessed December 15, 2011.
5. Liu LY. Economic cost of alcohol and drug abuse in Texas: 2002 Update. Texas Commission on Alcohol and Drug Abuse. DSHS Website. http://www.dshs.state.tx.us/sa/.../economics/EconomicCostsDec2000.pdf. Accessed December 15, 2011.
6. U.S. Department of Labor. What Works: Workplaces Without Drugs. USDL Website. http://www.labor.ny.gov/workerprotection/safetyhealth/PDFs/WSLP/Cost%20Benefit%20D%20and%20A%20prevent.pdf. Accessed December 15, 2011.

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Use of Preventive Services

Clinical preventive services, such as routine disease screening and scheduled immunizations, are key to reducing death and disability and improving the Nation's health. These services both prevent and detect illnesses and diseases—from flu to cancer—in their earlier, more treatable stages, significantly reducing the risk of illness, disability, early death, and medical care costs.

Yet, despite the fact that these services are covered by Medicare, Medicaid, and many private insurance plans under the Affordable Care Act, millions of children, adolescents, and adults go without clinical preventive services that could protect them from developing a number of serious diseases or help them treat certain health conditions before they worsen.

Healthy People 2020

Prenatal Care

Overview

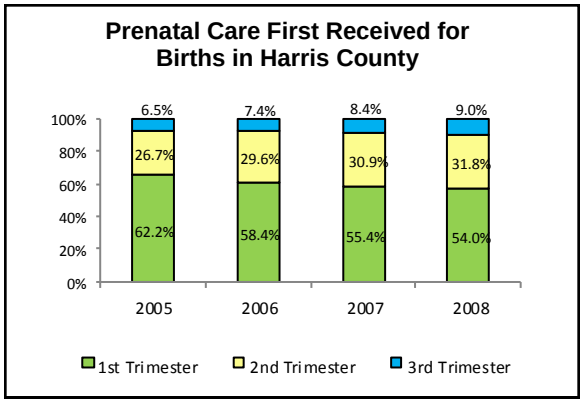
The American College of Obstetrics and Gynecology recommends that all pregnant women receive prenatal care beginning in the first trimester. Receiving prenatal care includes regular health check-ups, education regarding nutrition, and proper physical activity during pregnancy. Expectant mothers should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

The National Institutes of Health reports that adequate prenatal care is closely tied with the birth of healthy babies. Inadequate prenatal care has been linked to low birth weight, prematurity, and increased maternal and infant mortality.

Photo courtesy of CDC

In Harris County, during the past five years, 16% of pregnant women either received late or no prenatal care. When asked why they did not access timely care, the most common reason was cost or lack of insurance (34% of all reasons). Other reasons were that they did not know they were pregnant or they did not have a Medicaid card.[1] These findings are similar to those reported in the Texas PRAMS for 2007, where "no money" and "no Medicaid card" were the top two reasons for delayed prenatal care."[1]

Trends: Houston/Harris County 2005-2008



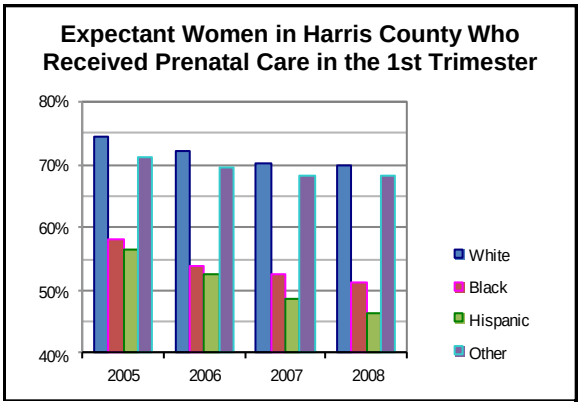
Source: TDSHS

Current trended data on prenatal care in Texas is available only for the period of 2005-2008. In 2005, a new birth certificate was implemented, which includes data on the onset of prenatal care within the first trimester. The new data is not directly comparable to years prior to 2005. In 2005, 62.2% of births in Harris County began prenatal care in the first trimester. In 2008, that number had dropped to 54.0%. This represents a decrease of more than 15%. A similar trend was observed in Texas with 9.1% fewer births beginning prenatal care in the first trimester in 2008, compared to 2005.

Population Differences

TDSHS reports show that in Harris County, in 2008, 54.0% of all expectant mothers received prenatal care beginning in the first trimester. A racial disparity can be seen in the percents of women who receive early prenatal care: 70.0% of white women, 51.1% of black women, and 46.4% of Hispanic women received care in the first trimester.

Hispanic women gave birth to fewer babies with low birth weight (7.2%) in 2008 in Harris County, compared to babies born to black (14.1%) or white (8.5%) mothers.

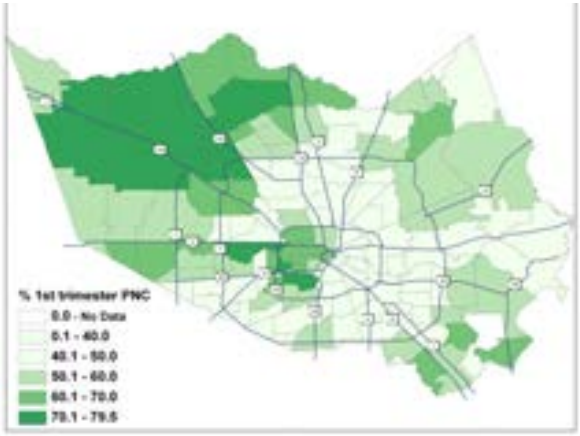


Source: TDSHS. This figure is not directly comparable to previous years due to the implementation of a new birth certificate in Texas in 2005.

1. Health of Houston Survey, *HHS 2010 a First Look*. Houston, TX: Institute for Health Policy, The University of Texas School of Public Health, 2011. p 11.

Geographic Distribution

2008 Harris County Births with Prenatal Care (PNC) Beginning in the First Trimester



Percentage of 2008 births in Harris County, in which the mother began prenatal care in the 1st trimester. Location is based on mother's residence zip code.
Only 13 zip codes are close to the 2020 goal of 77.9%

Data Source: Texas Department of State Health Services, Center for Health Statistics, October 2011.
Map by: June Hanke, Community Services HCHD.

Economic Impact of Prenatal Care

Inadequate prenatal care has been linked to multiple problems for mother and child. Among these problems is preterm birth. Premature births account for one in eight births in the U.S., and can lead to long-term health problems and lifelong disabilities. In the U.S., costs for preterm births were estimated at $26.2 billion, or roughly $51,600 per preterm infant in 2007.[2] Additional medical costs continue through the first year of a preterm infant's life, at an average of $49,000. By contrast, a newborn without complications costs $4,551 for medical care in its first year of life.[3]

Family planning is also related to use of prenatal care, in that it prevents unintended pregnancy. A woman with an unwanted pregnancy is less likely to seek prenatal care and more likely to have preterm birth or other complications. In 2008, an estimated $1.9 billion was spent on publicly funded family-planning care, resulting in an estimated $7 billion in Medicaid savings for the cost of unplanned births.[4]

Healthy People 2020

Objective MICH 10.1: 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 2007	70.8
Target for 2020	77.9
Harris County 2008	54.0
State of Texas 2008	58.4
United States 2008	71.9

Public Health Actions

- Provide prenatal care to low income women and link women to prenatal services in the community.
- Educate women about prenatal health, care for themselves and their infants after delivery, the importance of vaccinations, and the availability of Medicaid and CHIP resources.
- 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).
- Promote contraception and abstinence 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.womenshealth.gov/faq/prenatal-care.cfm*

U.S. Dept. of Health and Human Services, Office on Women's Health: *www.womenshealth.gov*

2. Behrman RE, Butler AS. Preterm birth: causes, consequences, and prevention. Washington: Institute of Medicine; National Academies Press (US); 2007. Available at http://www.ncbi.nlm.nih.gov/pubmed/20669423. Accessed December 15, 2011.
3. March of Dimes Foundation. The Cost of Prematurity to U.S. Employers. March of Dimes Website. Available at http://www.marchof dimes.com/peristats/pdfdocs/cts/ThomsonAnalysis2008_Summary Document_ final121208.pdf. Accessed December 15, 2011.
4. Frost JJ, Henshaw SK, Sonfield A. Contraceptive Needs and Services: National and State Data, 2008 Update. New York: Guttmacher Institute, 2010. Available at http://www.guttmacher.org/pubs/win/contraceptive-needs-2008.pdf. Accessed December 15, 2011.

Immunizations

Overview

Immunizations are one of the greatest public health achievements, leading to control of once common diseases such as polio, measles, mumps, pertussis, and tetanus. Immunizations protect those inoculated against the disease and also those who did not received the immunization by reducing the spread of infection.

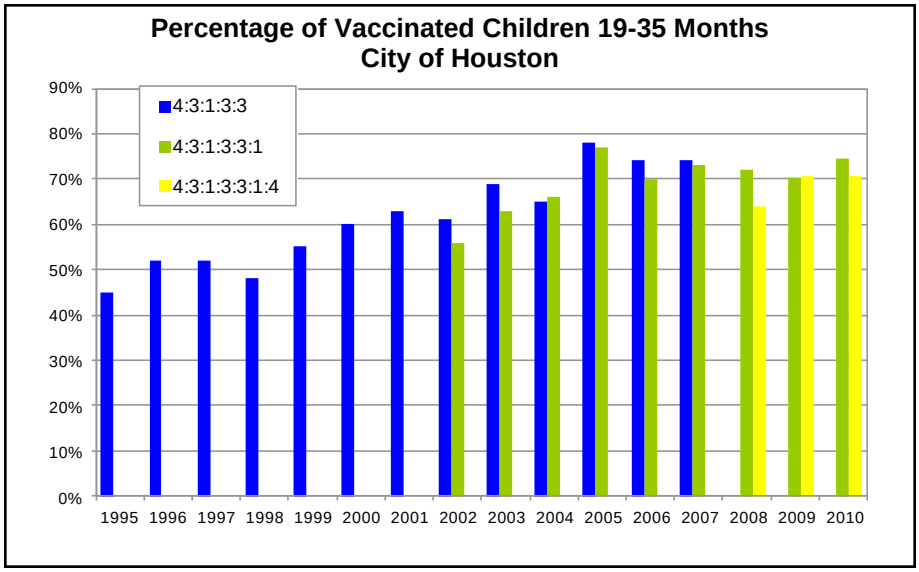
The Advisory Committee on Immunization Practices (ACIP) and the American Academy of Family Physicians (AAFP) recommend the schedule for childhood vaccinations. Currently, children receive 11 vaccines inoculating against 15 diseases. Most vaccines require numerous doses per visit to the child's medical provider.

Additional vaccinations are recommended for adolescents and adults. For example, CDC recommends that adolescents receive the HPV vaccination at age 11 or 12. Adults over the age of 65 should be vaccinated against influenza annually and receive a one-time vaccine against herpes zoster and pneumococcal pneumonia. Influenza and pneumonia remain deadly diseases, especially for the elderly. In Harris County, influenza/pneumonia is the 9th leading overall cause of death and the leading infectious cause of death.

CDC photo

Trends: Houston/Harris County 1995-2010

As of 2010, the CDC's National Immunization Survey showed that 74.5% of Houston infants received the recommended vaccinations (series 4:3:1:3:3:1), compared to 74.8% and 74.9% 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: Varicella was added in 2002, Pneumococcal conjugate vaccine (PCV7) was recommended after 2008.

For adults in 2010 aged 65 and older, Texas BRFSS reported that 64.2% of seniors in the Houston-Baytown-Sugar Land MSA had received an influenza vaccination in the past year, and 65.3% had been vaccinated against pneumonia. In Texas, 67.2% had a flu shot in the past year (66.5% nationwide) and 68.5% had been vaccinated against pneumonia (67.6% 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.
The 4:3:1:3:3:1:4 series adds four doses of the pneumococcal conjugate vaccine (PCV7) and was recommended after 2008.

Populations Differences

Many people still do not have adequate immunizations, especially children and adults in the lowest socioeconomic levels. They may be unable to pay for vaccinations and are unlikely to have insurance coverage. A resource for these individuals is the Vaccines for Children program.

BRFSS data show that in 2010, in the Houston-Baytown-Sugar Land MSA, white adults are more likely to have gotten a flu shot in the past year (44.6%), compared to blacks (32.2%) or Hispanics (31.1%).

Economic Impact of Immunizations

Vaccines protect not only individuals but entire communities, resulting in great economic benefits for society. For every dollar spent for routine childhood immunization programs in the United States during 2005 the economic benefits were savings of $5 in direct costs and approximately $11 in indirect costs to society.[1]

A pH1N1 vaccination study during the pandemic influenza period in April 2009 estimated cost-savings of pH1N1 vaccinations for persons 6 months to 64 years under various assumptions. For those without high risk conditions, incremental cost-effectiveness ranged from $8,000 to $52,000/quality-adjusted life-year depending on age and risk status.

Vaccinations are cost-effective compared to other preventive health interventions.[2] The table below illustrates the cost-benefit analysis of commonly used vaccines.

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 2020

Objective IID-8: Increase the proportion of children aged 19 to 35 months who receive the recommended doses of DTaP, polio, MMR, Hib, hepatitis B, varicella and PCV vaccines

Children Aged 19-35 Months Who Received the Recommended Vaccines*

Area	Percent
National Baseline 2008	68.0
Target for 2020	80.0
City of Houston 2010	74.5
State of Texas 2010	74.8
United States 2010	74.9

*4DTaP, 3 Polio, 1MMR, 3Hib, 3 HepB, 1Varicella (Series 4:3:1:3:3:1)

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.
- 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/vaccines*
Texas Department of Health Immunization Branch: *www.dshs.state.tx.us/immunize*
PKIDS: *www.pkids.org*
HDHHS Immunization Bureau: *www.houstontx.gov/health/Immunizations/*
HCPHES: *www.hcphes.org/dccp/Immunization/Immunization.htm*
Vaccines for Children Program: *www.cdc.gov/vaccines/programs/vfc*
Houston Area Immunization Partnership: www.immunizehouston.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. Available at http://archpedi.ama-assn.org/cgi/content/short/159/12/1136. Accessed December 18, 2011.
2. Prosser LA, Lavelle TA, Fiore AE, Bridges CB, Reed C, Jain S, Dunham KM, Meltzer MI. Cost-effectiveness of 2009 pandemic influenza A (H1N1) vaccination in the United States [abstract]. *PLoS ONE* 2011; 6(7)): e22308. doi:10.1371/journal.pone.0022308: Available at http://www.ncbi.nlm.nih.gov/pubmed/21829456. Accessed December 18, 2011.

Cancer Screening

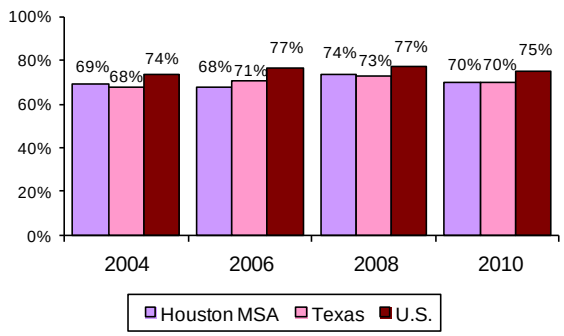
Overview

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

Percent Women Aged 40 and Older Had a Mammogram in the Past Two Years



Source: TDSHS BRFSS survey

CDC BRFSS data for 2010 indicates that 77.2% of women aged 18 or older in Houston/Harris County had received a pap smear test within the past 3 years, down from 87% in 2002. These percentages can be compared to 79.4% in Texas for 2010, and 80.9% in the U.S.

In 2010, 14.6% of adults aged 50+ in Houston/Harris County reported a fecal occult blood test in the past two years, down from 24% in 2002. The 2010 rate was 14.9% in Texas and 17.0% in the U.S.

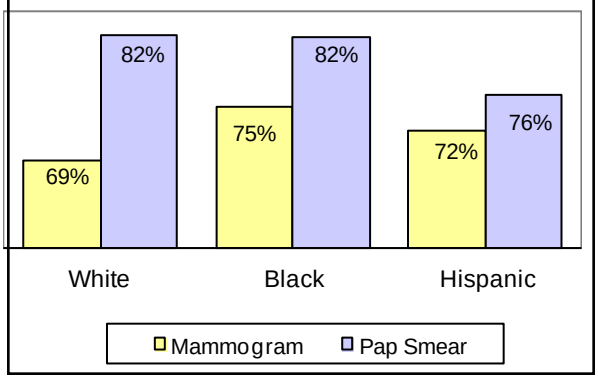
In 2008, 60.2% of adults aged 50 and over in Houston/Harris County reported ever having had a sigmoidoscopy or colonoscopy, up from 48% in 2004. For 2010, 61.6% of Texans had one of the tests compared to 64.7% in the U.S.

Population Differences

The TDSHS 2010 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, 76.2% reported a pap smear in the past three years compared to 63.5% of those with incomes of $25,000 or less. Among college graduates, 75.5% reported a mammogram in the past two years but only 65.8% of those with a high school diploma.

Men are more likely to report having a fecal occult blood test than women. In 2010, in the Houston MSA, 13.1% of females and 14.3% of men age 50+ reported having this test, compared to 14.9% of males and females combined in Texas.

Had a Mammogram Within Two Years
Had a Pap Smear Within Three Years
Houston-Baytown-Sugar Land MSA 2010



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 50 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 50–75 years for colon cancer.

Take control of your health and cancer risk by staying away from tobacco, staying at a healthy weight, getting regular physical activity, eating plenty of fruits and vegetables, limiting alcohol consumption, protecting your skin, getting regular check-ups and screenings, and knowing your risk.
—The American Cancer Society

Economic Impact of Early Cancer Detection

The cost of cancer in the U.S. in 2010 was estimated at $263.8 billion: $102.8 billion for direct medical costs and $161 billion for indirect morbidity and mortality costs.[1] In Texas alone, costs in 2007 were estimated to be $21.9 billion, including direct costs of $10.0 billion, indirect costs of $11.8 billion, and $78.5 million in related costs.[2]

The economic impact of cancer screening can be evaluated in terms of cost effectiveness 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. Estimated costs per year of life saved are:

- Colorectal cancer screening $4,361-$9,180[3]
- Breast cancer screening $4,760-$18,167[4]
- Cervical cancer screening $9,871-$12,878[5]

Healthy People 2020

Objective C-17: Increase the proportion of women who receive a breast cancer screening based on the most recent guidelines.

Women Who had a Mammogram in the Last Two Years, Aged 50-74

Area	Percent
National Baseline 2008	73.7
Target for 2020	81.1
Harris County 2010*	70.5*
Texas 2010*	70.1*
United States 2010*	75.4*

*Adults ages 18 and older from BRFSS surveys

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 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 and research causes of racial disparities.

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: *www.statecancerprofiles.cancer.gov*

1. American Cancer Society. Cancer Facts & Figures 2011. American Cancer Society Website. Available at http://www.cancer.org/acs/groups/content/@epidemiologysurveilance/documents/document/acspc-029771.pdf. Accessed December 28, 2011.
2. Texas Department of State Health Services, Texas Cancer Registry. The cost of cancer in Texas 2007. TDSHS Website. Available at http://www.dshs.state.tx.us/tcr/publications.shtm. Accessed December 28, 2011.
3. Pickhardt PJ, et al. Cost-effectiveness of colorectal cancer screening with computed tomography colonography: the impact of not reporting diminutive lesions [abstract]. *Cancer*. 2007;109(11):2213-21. http://www.ncbi.nlm.nih.gov/pubmed/17455218. Accessed December 28, 2011.
4. Moore SG, et al. Cost-effectiveness of MRI compared to mammography for breast cancer screening in a high risk population. *BCM Health Serv Res*.2009;9:9. Available at http://www.biomedcentral.com/1472-6963/9/9. Accessed December 28, 2011.
5. Balasubramanian A, et al. Accuracy and cost-effectiveness of cervical cancer screening by high-risk human papillomavirus DNA testing of self-collected vaginal samples. *J Low Genit Tract Dis*. 2010;14(3):185-95. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2898894/. Accessed December 28, 2011.

Oral Health

Early childhood caries (ECC)

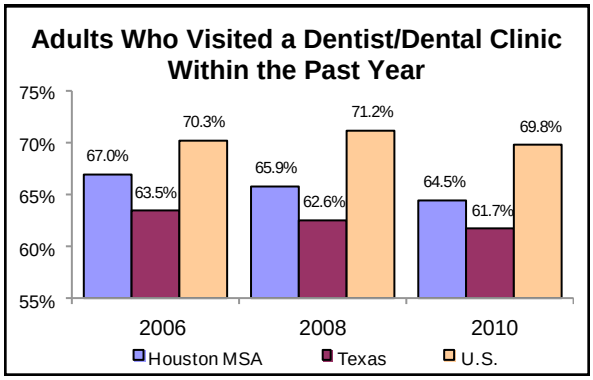
Overview

The American Academy of Pediatric Dentistry recommends an oral exam for all infants within the first year of life or within six 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.

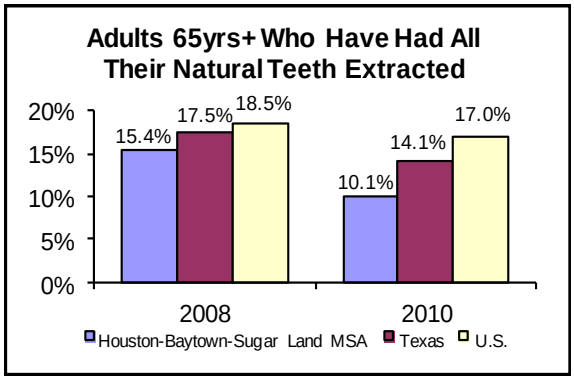
The two most common oral diseases are dental caries (tooth decay) and periodontitis (advanced gum disease affecting the surrounding bone of the teeth). Both conditions are preventable, but if untreated, can lead to pain, infection, and partial or complete tooth loss. Dental caries can also be passed 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 2006-2010



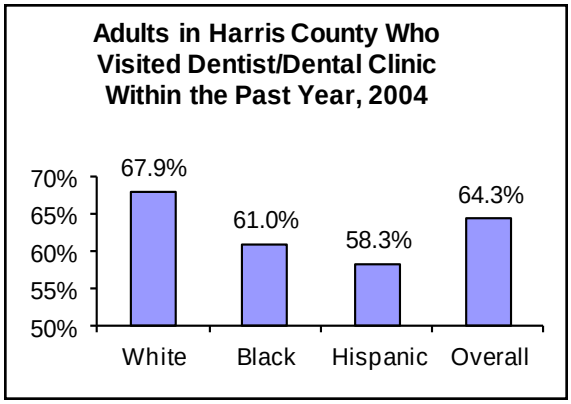
Source: CDC, BRFSS



Source: CDC, BRFSS

Population Differences

The BFRSS shows that 64% of adults residing in Harris County visited a dental professional in 2010. 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 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. Available at http://www.ncbi.nlm.nih.gov/pubmed/12728101. Accessed September, 2008.
2. Satcher D. Oral Health in America: A Report of the Surgeon General, May 2000. Available at http://www.surgeongeneral.gov/library/oralhealth/. Accessed September, 2008.
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 ranges from $0.40 to $2.50.[4]

In their annual report for 2009, HCPHES reported that over 920,000 persons in Harris County, or approximately 23% of the total population are served by residential drinking water systems that did not meet the minimum level of fluoridation that may benefit oral health.

Oral health is impacted by tobacco use, alcohol use, dietary choices, access to health services, and health insurance.

— Centers for Disease Control and Prevention

Economic Impact of Dental Care

The socioeconomic impact of oral health is extensive, especially in vulnerable populations such as children. Each year children miss more than 51 million school hours due to dental-related illness. Over the lifespan, oral diseases often become complex, resulting in a loss of more than 164 million hours of work each year by employed adults due to dental illness and office visits.[5]

Preventive care such as fluoridation, sealants, and early check-ups are cost-effective. Each dollar invested in fluoridation of water is estimated to yield approximately $38 of savings in dental treatment costs.[6] Children who have their first dental visit by age one have average dental costs that are 40% lower over a five year period compared to children who have not seen a dentist.[7] Among children enrolled in Medicaid, sealants have been shown to be effective in reducing decay of sealed molars for up to 7 years.[8]

Healthy People 2020

Objective OH-7: Increase the proportion of children, adolescents, and adults who used the oral health care system in the past 12 months.

Dental Visit in the Previous Year Aged 2 and Older

Area	Percent
National Baseline 2007	44.5
Target for 2020	49.0
Harris County 2010*	64.0*
State of Texas 2010*	61.7*
United States 2010*	70.1*

*Ages 18 and older

Public Health Actions

- Educate people about the importance of optimal nutrition and drinking fluoridated water to promote good oral health.
- Promote routine dental care and oral hygiene, and provide dental care when otherwise unavailable for low income pregnant women and children.
- Mobilize partnerships to improve access to dental health services and ensure 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*

4. Task Force on Community Preventive Services. Guide to Community Preventive Services: Oral Health. Available at http://www.thecommunityguide.org/oral/fluoridation.html. Accessed March 1, 2012.
5. National Institute of Dental and Craniofacial Research, Data & Statistics. Oral health in America: a report of the Surgeon General. NIDCR Website. http://www.nidcr.nih.gov/datastatistics/surgeongeneral/report/executivesummary.htm. Accessed December 30, 2011.
6. Centers for Disease control and Prevention, Oral Health. Cost savings of community water fluoridation. CDC Website. http://www.cdc.gov/fluoridation/fact_sheets/cost.htm. Accessed December 28, 2011.
7. Savage MF, Lee JY, Kotch JB, Vann WF. Early preventive dental visits: effects on subsequent utilization and costs. *Pediatrics*.2004;4:418-423. http://pediatrics.aappublications.org/content/114/4/e418.full. Accessed December 30, 2011.
8. Weintraub JA, Stearns SC, Rozier RG, Huang CC. Treatment outcomes and costs of dental sealants among children enrolled in Medicaid. *Am J Public Health*. 2001;91(11): 1877–1881. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1446894/pdf/0911877.pdf. Accessed December 30, 2011.

Vision/Vision Screening

Overview

Healthy vision is important for communication, learning, work, play, and interacting with the outside world.

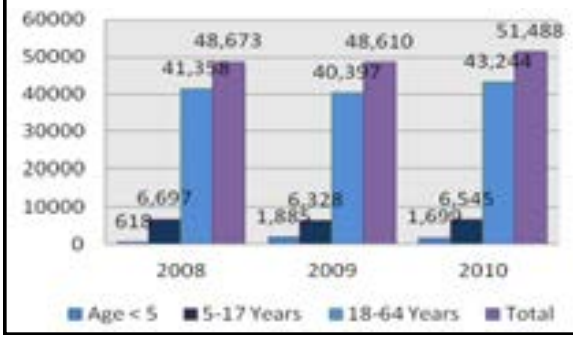
An estimated 1% to 5% of preschool children in the United States have vision impairment, often undiagnosed for years due to lack of early warning signs.[1] An initial comprehensive eye exam is recommended between ages 3-5 years to detect vision problems and get corrective eyewear, medicine, or surgery to prevent vision loss and related disability later in life.

In Texas, children enrolled in licensed child care or school are required to have vision and hearing screening at age four, kindergarten, 1st, 3rd, 5th and 7th grades. As a result, approximately 2,600,000 children are screened in Texas annually for vision impairments.[2]

In Harris County, the 20 Independent School Districts provide the required vision screenings. During the 2009-2010 school year, 417,948 students were screened, and 10.8% were recommended for further evaluation and/or glasses. Most children received follow-up exams, but 17,892 remained untreated.[3]

Trends: Texas 2008-2010

Vision Impairment in Harris County 2008-2010 by Age Group



Source: US Census Bureau American Community Survey

The CDC Vision Health Initiative reports that vision impairments in people younger than age 40 are mainly caused by refractive errors and accidental eye injury. Refractive errors affect 25% of children and adolescents and can often be corrected with prescription eyewear.[2]

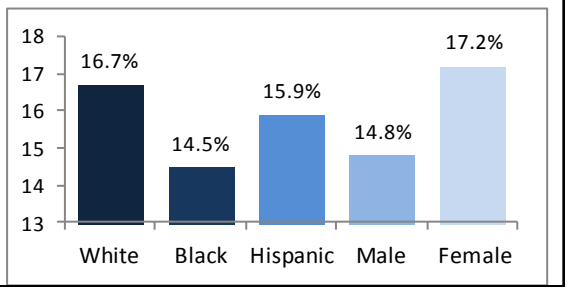
Vision impairment is measured by the U.S. Census American Community Survey, with results profiled in the chart to the left. The survey asks if the respondent is blind or has serious difficulty seeing, even when wearing glasses.[4] This number is a much smaller percentage of the total population compared to those who have vision problems corrected by eyeglasses.

Population Differences

Among Houston-Baytown-Sugar Land MSA adults who reported that they had been diagnosed with eye disease, those with lower incomes tended to have higher diagnosis percentages: 19.7% for income of less than $25,000, 20.4% for income of $25,000-$49,000, and 12.1% for income of $50,000 or more.

The overall percentage of those with eye disease diagnoses for the Houston MSA was 16.0%, which can be compared to Texas at 18.0% and the U.S. at 18.2%.

2007 Houston MSA Adults with Diagnosis of Cataract, Glaucoma, or Macular Degeneration

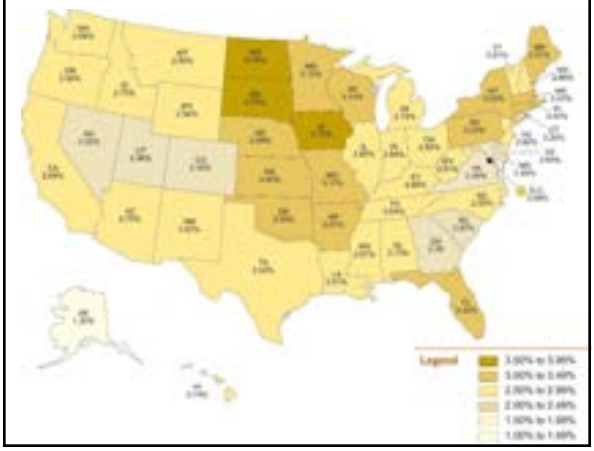


Source: TDSHS BRFSS survey

1. U.S. Preventive Service Task Force, Screening: Visual Impairment in Children. Screening for visual impairments in children ages 1-5 years. USPSTF Website. Available at http://www.uspreventiveservicestaskforce.org/uspstf11/vischildren/vischildart.htm. Accessed January 29, 2012.
2. Texas Department of State Health Services, Vision and Hearing Screening. Available at http://www.dshs.state.tx.us/vhs/default.shtm. Accessed January, 2012.
3. Texas Department of State Health Services, Vision, Hearing and Spinal Screening Program. Data provided by request.
4. U.S. Census Bureau, Fact Finder. Disability characteristics: 2008-2010 American community survey 3-year estimates. US Census Bureau Website. Available at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?fpt=table. Accessed January 30, 2012.

Geographic Distribution

Prevalence Rates of Vision Impairment & Blindness for Persons Age 40 and Older, Year 2000

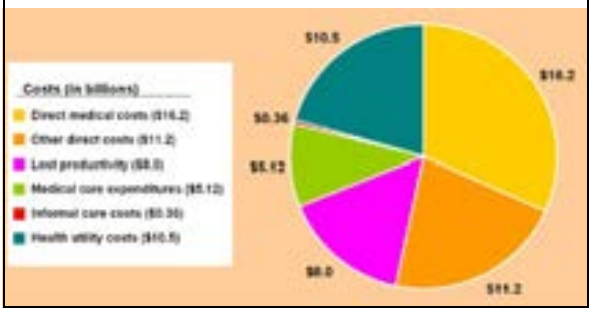


Source: http://www.preventblindness.net/, used with permission

Economic Impact of Vision Loss

Blindness and visual impairment lead to extensive costs such as medical care, lost productivity and health utility costs. The chart below, provided by the CDC Vision Health initiative, estimates that U.S. total costs for vision loss equal $51 billion each year.[5]

Economic Impact of Vision Loss in the U.S. Total $51 Billion[5]



Source: CDC Vision Health Initiative

Additional studies have linked untreated vision problems with low literacy and educational attainment, and with increased criminality.[6] Up to 74% of adults with literacy problems fail vision screening tests. An estimated 43% of adult prison inmates have not obtained a high school diploma; this low percent has been linked to vision problems,[7] and is below the U.S. average of 14% without a high school diploma.[8]

Healthy People 2020

Objective V-1: Increase the proportion of preschool children aged 5 and under who receive vision screening

Percent of Preschool Children Aged 5 and Under Who Received Vision Screening

Area	Rate
National Baseline 2008	40.1
Target for 2020	44.1
Harris County 2010	16.1 for 1 yr*
State of Texas 2010	15.2 for 1 yr**
United States 2008	40.1

*The TDSHS Vision, Hearing and Spinal Screening Program reported that 52,119 Pre-K children were screened in school year 2009-2010 in Harris County, compared to the total population of 336,314 Harris County children aged under 5 years.
**During the 2009-2010 school year, 292,986 Pre-K children in Texas received vision screening, compared to the total population of 1,928,473 Texas children aged under 5 years.

Public Health Actions

- Monitor health status and public compliance with vision screening and visual disorders.
- Develop partnerships to that can provide a vision screening safety net for low income children.
- Inform, educate, and empower people about vision screening through publications, trainings, and other media.
- Link people to needed personal health services through referrals.

For More Information

Centers for Disease Control:
www.cdc.gov/visionhealth/index.htm

TX Department of State Health Services:
www.dshs.state.tx.us/vhs/vision.shtm

Prevent Blindness America:
www.preventblindness.org

National Eye Health Education Program:
www.nei.nih.gov

5. CDC Vision Health Initiative website. Available at http://www.cdc.gov/visionhealth/. Accessed February 1, 2012.
6. Frick KD, et al. Economic impact of visual impairment and blindness in the United States. *Arch Ophthalmol*. 2007;125:544-550. Available at http://www.hopkinsmedicine.org/wilmer/danacenter/publications/gower_docs/economic_impact_blindness.pdf. Accessed January 29, 2012.
7. Zaba JN. Children's vision care in the 21st century and its impact on education, literacy, social issues, and the workplace: a call to action. *J Behav Optom.* 2011;22(2):39-41. Available http://oepf.org/jbo/journals/22-2%20Zaba.pdf. Accessed January 30, 2012.
8. US Census Bureau website. Available at www.census.gov. Accessed January 30. 2012.

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Environmental Health Indicators

Environmental Health consists of preventing or controlling disease, injury and disability related to interactions between people and their environment.

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 2020

Air Quality

Overview

Exposure to air pollution can result in both short term and long term health effects, which can include respiratory illnesses such as asthma and cancer. The air pollutants of most concern to Houston residents are: ozone, fine particulates, 1,3-butadiene, and benzene.[1]

Ozone and Fine Particulates

Ozone and fine particulates are commonly found in large cities in the United States and are regulated by the Environmental Protection Agency (EPA) through the National Ambient Air Quality Standard (NAAQS).

Ozone is formed by motor vehicle exhaust, industrial emissions, gasoline vapors, and chemical solvents, as well as natural compounds that react in the presence of sunlight. It is dangerous at ground-level. Ozone can cause difficulty breathing, wheezing, aggravation of asthma, and increased susceptibility to respiratory illness. Houston and Harris County have exceeded the EPA NAAQS standard for ozone levels since the standard was set in 1977.[1]

Fine particulate matter ($PM_{2.5}$), is a mixture of airborne microscopic solid particles and/or liquid droplets of 2.5 microns or less in diameter. $PM_{2.5}$ consists of acids, organic chemicals, metals, dust particles and allergens. Long term exposure to $PM_{2.5}$ is associated with reduced lung function, development of bronchitis, and even premature death. Short term exposure can aggravate lung disease and increase risk of heart attacks and arrhythmias for people with heart disease. Houston and Harris County remain below but near the EPA NAAQS for $PM_{2.5}$. The vicinity of Clinton Drive, in the ship channel area, consistently shows the highest concentration of $PM_{2.5}$, although statistically significant decreases have been seen in $PM_{2.5}$ concentrations there in the last five years.[1]

1,3-Butadiene and Benzene are two hazardous pollutants more unique to our region as a result of the Port of Houston and the associated chemical/refining industrial complex. Both are known to cause cancer in humans. In Houston, benzene concentrations vary at different sites due to the sources of the chemical, such as motor vehicle traffic and specific industries.

How Big is Particle Pollution?

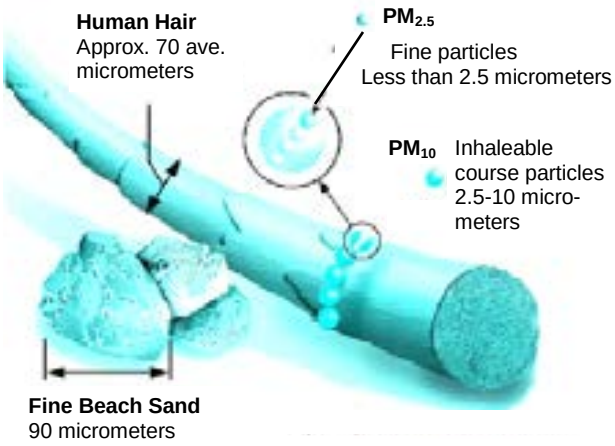
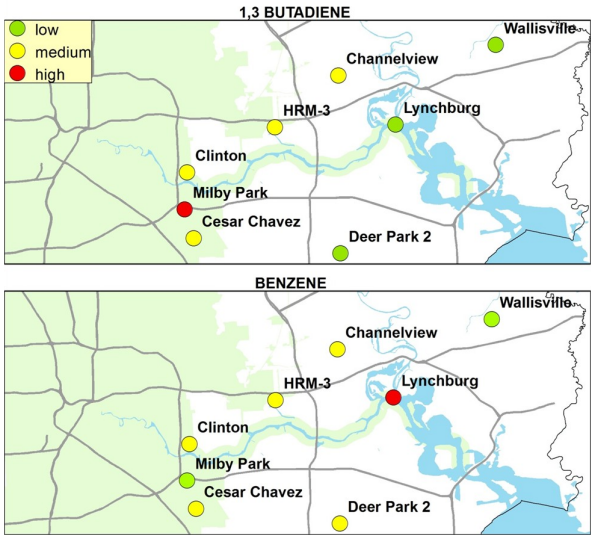


Image courtesy of EPA, Office of Research and Development

The charts below show 2011 measures of concentrations of 1,3-butadiene and benzene in eastern Harris County and industrial areas.[1]

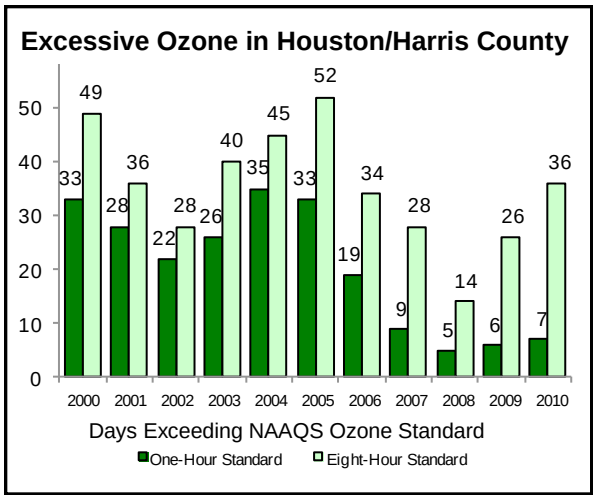


From 2007-2011, both 1,3-butadiene and benzene have shown statistically decreasing trends, indicating improving air quality across Houston.

1. Mayor's Office of Environmental Programming, City of Houston, TX. Reports are available at the Green Houston website, http://www.greenhoustontx.gov/reports.html. Accessed December 30, 2011.

Trends: Houston/Harris County

The overall trend for excessive ozone days in Houston/Harris County shows fluctuation in recent years but trended gradually lower until 2008, where it began increasing once again. The chart below uses standards of 125 ppbv (parts per billion volume) for 1-hr ozone days and 85 ppbv for 8-hr ozone days. In 2011 the EPA designated the Houston region as a severe non-attainment area as more stringent 8-hr ozone standards were set.



Source: Texas Commission on Environmental Quality

Economic Impact of Air Quality

The economic burden of poor air quality includes taxes designated to environmental protection, increases in health risks of community residents, and loss of productivity. For example, in the Houston ship channel and other industrial areas, long term exposure to air pollution increases cancer risk by a factor of 1,000.[2]

A recent study linked productivity of agricultural workers with air quality, in which ozone levels well below federal standards were shown to have a significant impact on productivity: a 10 ppb decrease in ozone concentrations increased worker productivity by 4.2 percent.[3]

Another study, involving the 39 largest school districts in Texas indicated that high carbon monoxide levels significantly increased school absences. The substantial decline in CO levels over the past two decades yielded economically significant health benefits.[4]

Healthy People 2020

Objective EH-1: Reduce the number of days the Air Quality Index (AQI) exceeds 100

Days exceeded 100 on the Air Quality Index (AQI)

Area	Days
National Baseline 2008	11
Target for 2020	10
Houston/Harris County 2010	36
Texas 2010	**
United States 2008	11

*Measures not available

Public Health Actions

- Research new insights and innovative solutions to fight identified pollutant risks.
- Mobilize partnerships for actions such as settlement agreements between local government and industry to reduce emissions.
- Educate residents to reduce emissions through methods such as carpooling, 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*

Environmental Defense: *www.environmentaldefense.org/cleanairforlife.cfm*

Air Alliance: *http://www.airalliancehouston.org/*

Harris County Pollution Control Department: *http://www.hctx.net/pollutioncontrol/* *or call* (713) 920-2831.

HDHHS, Daily Mold and Pollen Report: *www.houstontx.gov/health/Pollen-Mold/index.html* or call 713-247-5846

The Mayor's Office of Environmental Programming: *www.greenhoustontx.gov*

2. Galveston-Houston Association of Smog Prevention. *Where does Houston's smog come from?* 2003. Air Alliance website. Available at http://airalliancehouston.org/files/WheredoesHoustonSmogComeFrom_1.pdf. Accessed January 26, 2012.
3. Zivin JG,et al. The impact of pollution on worker productivity. NBER Website. Available at http://www.nber.org/papers/w17004.pdf. Accessed December 30, 2011.
4. Currie J, Hanushek EA, Kahn EM, Neidel Ml, Rivkin SG. Does pollution increase school absences? *The Rev of Econ and Stat.* 2009;91(4):682–694. Available at http://www.usapr.org/paperpdfs/53.pdf. Accessed December 30, 2011.

Air Quality, cont.

Populations at Risk

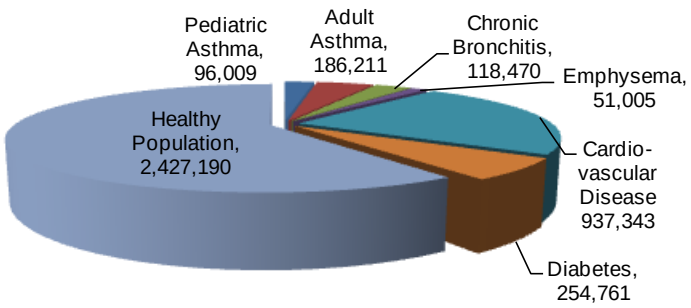
All areas in the Houston/Harris County region are exposed to unhealthy levels of at least one air contaminant—a result of urban concentrations of vehicle exhaust and industrial emissions. Communities closest to the largest sources of air toxins are at a greater risk of detrimental health effects from 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 40% 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 4 million people living in Harris County in 2010, more than 328,354 were over 65 (approx. 8.1%) and more than one million were under 18 (approx. 29%).

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 2011

Geographic Distribution

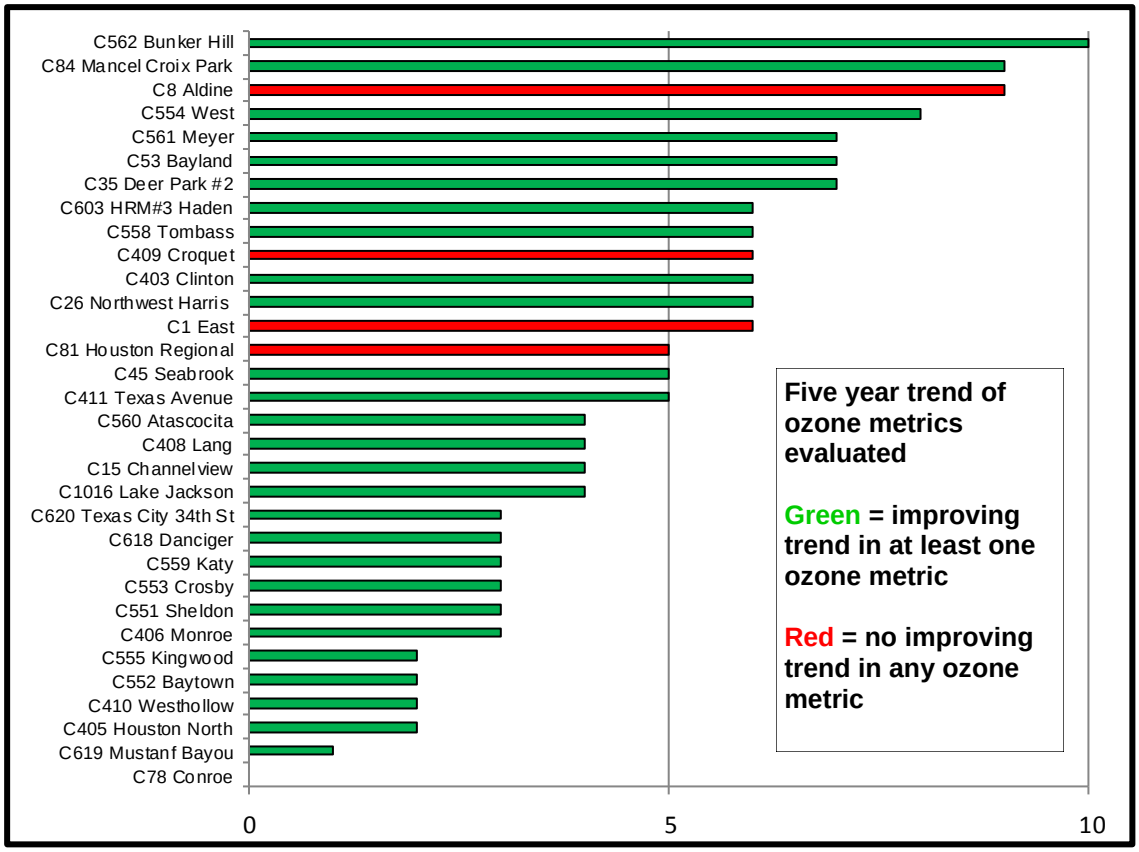
The following figures illustrate local trends of one air pollutant, ozone. When at ground level, ozone can irritate the respiratory system, impairing one's ability to breathe, or aggravate respiratory conditions such as asthma, emphysema, and bronchitis. Air quality experts also believe that repeated exposure to ground-level ozone can cause permanent lung damage.

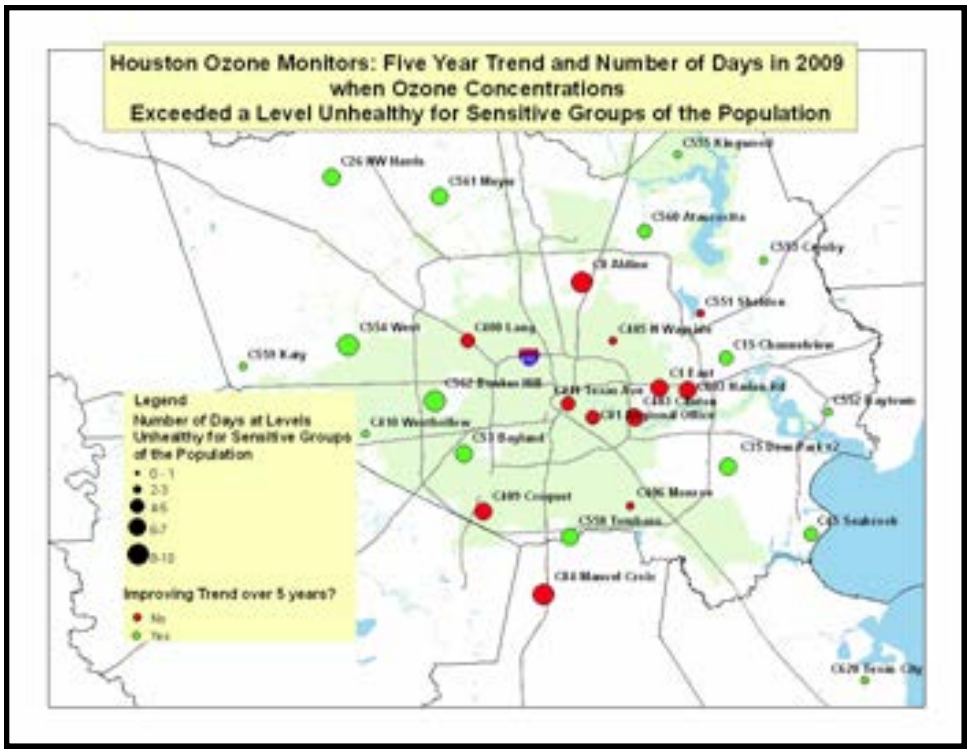
The City of Houston conducted a comprehensive investigation of the annual trends of ozone in the air surrounding Houston and vicinity through a 5-year trend analysis released Spring 2011. The analysis used 1-hr ozone data collected from 32 air quality monitors in the Houston vicinity from 2005 to 2009. Daily monitor maximums were aggregated and five statistical measures were used for the trend analysis (see page 65).

The key results from the analysis showed that 85.7% of the air quality monitors included in the analysis had a significant improving trend in at least one of the ozone metrics that was used in the analysis between 2005 and 2009. In 2009, the monitors with the most severe ozone conditions were at the monitors located in Bayland Park, Northwest Harris County, Deer Park, Manvel Croix Park, Atascocita, Tom Bass, Meyer, and East. Of these 10 monitors with the most severe ozone exposure, 30% showed no improving trends.[1]

[1]Mayor's Office of Environmental Programming. Trend Analysis of Ozone Concentrations in the City of Houston and Vicinity (2005-2009). Available at http://http://www.greenhoustontx.gov/reports/ozonetrendsthrough2009.pdf. Last accessed October 6, 2011.

Number of Days at Ozone Levels Unhealthy for Sensitive Groups by Monitor in 2009 and 5-year Trend (2005-2009)





Source: Mayor's Office of Environmental Programming. Trend Analysis of Ozone Concentrations in the City of Houston and Vicinity (2005-2009). Available at http://www.greenhoustontx.gov/reports/ozonetrendsthrough2009.pdf. Accessed October 6, 2011.

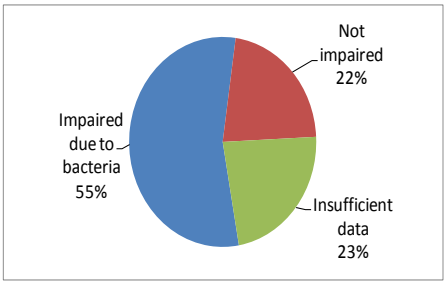
Surface Water Quality/Solid Waste

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 through cooperative efforts by HDHHS and Harris County Pollution Control Services (HCPCS), each monitoring its respective areas. Greater than 91% of the designated stream segments in the City of Houston/Harris County have at least one water quality impairment.

Stream Segments with Elevated Bacteria Houston/Harris County 2010



Source: HCPCS records

Houston/Harris County contains 1,623 stream miles for which data is captured:

- 10% are impaired for dissolved oxygen
- 25% show PCB/dioxin contamination
- 10% show other contaminants
- 55% have bacterial impairments
- 48% have an elevated nutrient concern
- Most streams have more than one impairment[1]

Due to these pollutants, contact recreational activities and the consumption of fish or shellfish living in the streams may be unsafe for human consumption.

Most water bodies in our region are considered unsuitable for recreational activities such as swimming. The Houston Ship Channel and Upper Galveston Bay are areas of particular concern due to contamination with dioxin and PBCs. These chemical pollutants can lead to severe health problems such as cancer, damage to multiple organs, and developmental problems in children.[2]

Testing Local Surface Water

Most Improved and Most Degraded Stream Segments

In 2010 the Houston-Galveston Area Council's (H-GAC) "How's the Water?" report[2] identified the most improved and most degraded streams for bacteria. The report identified improvements in the quality of several water bodies in Houston/Harris County. However, even these water bodies still indicate bacterial impairment. The causes of these bacterial contaminations can include failing septic tanks, sanitary sewer overflows, poorly maintained waste water treatment plants, agriculture, livestock and pet waste. Determining the exact cause is difficult.

Surface-water quality in Houston/Harris County has remained largely consistent in recent years.

Fats, Oils, Grease (FOG)

Each individual household can participate in improving water quality by proper disposal of common cooking oils/fats. Washing grease and cooking oil residue down the drain causes the solid grease to build up and block sewer lines, resulting in overflowing manholes and sewer material floatables. These contaminants add to the degradation of surface water quality.

Sewer pipe clogged with grease

1. Harris County Pollution Control Services records.
2. Houston-Galveston Area Council. *How's the Water? 2010 Basin Highlights Report.* Available at http://www.h-gac.com/community/water/resources/documents/crp_basin_highlights_report_2010.pdf. Accessed October 26, 2011.

The San Jacinto Waste Pits Superfund Site

The Texas Commission on Environmental Quality (TCEQ) reports that Harris County contains 26 current and former Superfund sites.[3] Superfund is the environmental program created to clean up abandoned hazardous waste sites.

One local Superfund site of particular concern is the San Jacinto River Waste Pits. These pits along the San Jacinto River were used historically to dispose of wastes from paper mills. Today, they are still contaminated, primarily with polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans. The EPA, TCEQ, Harris County, and the responsible party have worked together to remediate this area.

A geotextile cap (a permeable cloth or fabric used with soil or rock) has been placed on the pit located north of I-10 within the San Jacinto River to prevent dispersion of the toxic waste.[4]

Geotextile cap at the San Jacinto River Waste Pits Superfund Site

Due to contamination concerns, TDSHS has issued a Seafood Advisory for all fish and blue crab in the San Jacinto River as well as the Houston Ship Channel.

Economic Impact

There has never been a shortage of solid waste in our community. However, dumped liquid material such as grease and oil, and hazardous materials cause the most concern. These materials are not only aesthetically unpleasant—they also degrade surface water quality. The cost associated with cleaning up a solid waste site/ spill varies between incidents and could be as little as $500 to upwards of $1 million or more.

In 2010, Harris County spent an estimated $10,000 for solid waste clean up. This amount does not include monies spent by the City of Houston or by identified responsible parties.[5]

Healthy People 2020

According to the CDC's Office of Analysis and Epidemiology, National Center for Health Statistics, the objective regarding surface water from Healthy People 2010, "To increase the proportion of assessed rivers, lakes and estuaries that are safe for fishing and recreational purposes", was not included in Healthy People 2020. The reports provided by states were not sufficiently rigorous to serve as a national data source.[6]

Public Health Actions

- Enforce laws and regulations to protect health and ensure safety by testing and monitoring the quality of surface water, hazardous waste sites, landfills, illegal dumpsites and wastewater treatment plants.
- Mobilize community partnerships and action to solve pollution-related health problems through stakeholder meetings and activities such as voluntary waterway clean-ups.
- Educate the public on the importance of proper waste disposal, prevention of sanitary sewer overflows, and everyday habits that can negatively affect water quality.

Overflowing manhole scattering sewage debris

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 Water Resources Protection: 713-640-4256. Additional information is available at: *www.houstontx.gov/health/Environmental/the%20new%20phepage.html*

Harris County, outside the City Limits. Harris County Pollution Control Services: *www.hctx.net/pollutioncontrol* or call 713-920-2831

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

3. Texas Commission on Environmental Quality website. Available at http://www.tceq.texas.gov/remediation/superfund/sites/county/harris.html. Accessed January 16, 2012.
4. More information on the San Jacinto Waste Pit Superfund Site may be found at the EPA's website, at http://www.epaosc.org/site/site_profile.aspx?site_id=6534.
5. Harris County Pollution Control, written communication February 17, 2012.
6. Pearcy J. Health Promotion and Statistics Branch, Office of Analysis and Epidemiology, National Center for Health Statistics, Centers for Disease Control and Prevention. Written communication, Nov. 7, 2011. He may be contacted at jvp0@cdc.gov.

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 23 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 exceedance, 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 Exceedance of Selected Contaminants, Harris County, 2010

Contaminant	Source	Health Risks after Long-term Consumption	Systems in Exceedance	Residents Served by System(s)
Arsenic	Erosion of natural deposits, runoff from orchards, runoff from glass and electronics production wastes	Skin damage or problems with circulatory system, increased risk of cancer	9	42,981
Gross Alpha Particles, excluding Radon & Uranium	Erosion of natural deposits	Increased risk of cancer	7	18,684
Radium 226	Erosion of natural deposits	Increased risk of cancer	3	17,595
Combined Uranium	Erosion of natural deposits	Increased risk of cancer, kidney toxicity	3	6,270

There are 1,200 public drinking water systems in Harris County. Testing times differ for all areas from once a year to once every three years. In 2009 the standard for the acceptable amount of Arsenic in water was decreased, which may explain the increase in the number of systems with exceedence of Arsenic in Harris County. Source: HCPHES Environmental Public Health Division, 2010.

Occupational Health

Overview

The toll of workplace injury and illness is significant. Healthy People 2020 points out that workers spend a quarter of their lifetime and up to half of their waking lives at work or commuting. Despite improvements in occupational safety and health, workers continue to suffer from work related deaths, injuries, and illnesses.

According to the U.S. Department of Labor, the Texas nonfatal occupational injury rate has decreased in recent years to 3.1 per 100 full-time workers in 2009. From 2003 to 2010, Texas recorded as few as 440 work-related fatalities in a year (2004) to as many as 528 fatalities in a year (2007).

Locally, there were 82 fatal occupational injuries in the Houston-Baytown-Sugar Land MSA in 2010, compared to 119 in 2009, and 112 in 2008.[1] The top five events or exposures that caused fatal occupational injuries in Houston-Baytown-Sugar Land from 2007-2010 included transportation incidents, assaults and/or violent acts, falls, contact with objects and equipment, and exposure to harmful substances.[1]

Many occupational injuries result from falls.[1]

Of the 82 fatal occupational injuries that occurred in Houston-Baytown-Sugar Land MSA in 2010, 14% were in construction and extraction occupations. Over 26% occurred in industries classified as transportation and material moving occupations, and 16% occurred among the installation, maintenance and repair occupations.[1]

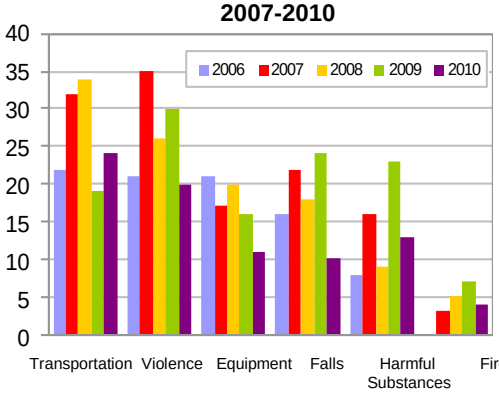
As of 2009, motor vehicle-related fatalities remained the leading cause of death for U.S. workers since 1980, followed by workplace homicides, falls, and exposure to harmful substances or environments.[1]

Population Differences

From 2007 through 2010, there were 438 fatal occupational injuries in the Houston-Baytown-Sugar Land MSA. Of those injured, 40% were Hispanic, 43% white and 17% black. Males accounted for 412 of those fatal occupational injuries.[1]

The Houston-Baytown-Sugar Land MSA had 82 of the 456 occupational injury deaths in Texas in 2010. Of the Texas fatalities, 426 were men and 30 were women. Whites accounted for 56% of the deaths, Hispanics 36%, blacks 6% and Asians 2%.[1] Nationally, from 2007 through 2010, whites comprised 70% of the deaths, Hispanics 16%, blacks 10% and other 6%.[1]

Houston-Baytown-Sugar Land MSA
Occupational Injury Deaths
2007-2010



*No data was reported for 2006 Fire Injury Deaths
Source: U.S. Department of Labor, Bureau of Labor Statistics

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

Texas Department of Insurance:
www.tdi.state.tx.us/wc/index.html

1. U.S. Department of Labor, Bureau of Labor Statistics. Available at www.bls.gov. Accessed October 18, 2011.

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 in contaminated food) lead to almost 48 million illnesses, more than 125,000 hospitalizations, and more than 3,000 deaths every year in the U.S.[1] 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 diarrheal illness in the United States. This bacteria is estimated to affect over 2.4 million people annually. Most people recover from the infection without any medical treatment, but antibiotics can be used to treat severe cases.[2]

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 food safety guidelines based on the Texas Food Establishment Rules.

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 back-flow, extended interruption of water service, food borne disease outbreak, or unsanitary condition such as pest infestation.

Food service inspections in Houston/Harris County 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 meat markets. Inspectors typically perform 6-10 inspections each day.

Trends: Houston/Harris County 2008-2010

Inspections Within the City of Houston

	2008	2009	2010
Total Facilities on 1/1*	13,255	13,170	13,232
Violations of the City Food Ordinance	43,129	53,843	41,784
Citations Issued to Establishments	1,038	771	780
Complaints Received	2,552	2,618	2,388
Alleged Food-Borne Illnesses Investigated	394	395	401
Establishment Closures	650	697	645
Total Inspections	21,284	26,941	24,228

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

Harris County Inspections
Unincorporated Harris County and 21 Municipalities

	2008	2009	2010
Total Establishments*	6,187	6,636	6,848
Violations, Texas Food Establishment Rules	18,856	21,975	21,797
Citations Issued to Establishments	342	265	326
Complaints Investigated	380	396	392
Alleged Food-Borne Illnesses Investigated	89	91	81
Establishment Closures	42	28	30
Total Inspections	15,224	19,340	18,620

*Includes mobile units but not temporary food establishments
Source: Harris County Public Health & Environmental Services

1. Mahon B. *Foodborne Illness: A Handy Overview.* CDC Expert Commentary, hosted on the Medscape website. Available at http://www.medscape.com/viewarticle/735505. Accessed December 9, 2011.
2. CDC, National Center for Emerging and Zoonotic Infectious Diseases website. Available at http://www.cdc.gov/ncezid/. Accessed December 9, 2011.

Mobile Food Units

The Houston Food Ordinance requires that mobile units that prepare food or serve prepared food make daily trips to the commissary for cleaning and servicing. To ensure fulfillment of this requirement, beginning in July 2009, HDHHS inspectors attached RFID (radio-frequency identification) tags similar to E-Z tags to 584 mobile food units. These tags monitor compliance with the ordinance.

Lead Contamination at Flea Markets

Eight City of Houston flea markets are under surveillance for lead contamination. Lead has been identified in clay pots with flesh toned pink or red paints, Mexican and Chinese toys with red or pink paint, and Mexican candies with wrappers containing lead. Folk remedies also potentially contain lead. In 2008, all eight flea markets were selling contaminated products. After educating the market managers and vendors, by August 2009, none of the flea markets had lead-related violations.

Economic Impact of Food Illnesses

The societal cost of food-borne illnesses was estimated in 2007 at $455 billion annually in the U.S. This estimate includes the direct costs of medical care and also costs associated with loss of productivity and potential death.[3]

Among states, Texas ranked second in the nation based upon the costs associated with food-borne illnesses. The total cost of food-borne illnesses in Texas in a 2010 report was estimated at $11.3 billion annually including medical costs, quality of life losses and lost life expectancy. These expenses resulted in a per capita cost in Texas of $473.[4]

Healthy People 2020

Objective FS-1: Reduce infections caused by *Campylobacter* species

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

Area	Rate
National Baseline 2006-08	12.7
Target for 2020	8.5
Houston/Harris County 2009	3.9
State of Texas 2010	7.9
United States 2010	13.6

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 educating flea market vendors to eliminate environmental hazards.
- Monitor health through the national surveillance program administered by the CDC to track *campylobacter* infection rates.

For More Information

City of Houston Food Ordinance: *www.houstontx.gov/codes/index.html*

Food Inspection Results at HDHHS: *http://houston.tx.gegov.com/media/index.cfm*

HCPHES: *www.hcphes.org*

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

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

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

3. RobertsT. WTP Estimates of the societal costs of U.S. food-borne Illness. *Amer. J. Agr. Econ.* 2007; 89(5): 1183-1188. Available at http://ddr.nal.usda.gov/bitstream/10113/13824/1/IND43985598.pdf. Accessed December 31, 2011.
4. Scharff RL. Health-related costs from foodborne illness in the United States. Produce Safety Project Website. Available at http://www.producesafetyproject.org/admin/assets/files/Health-Related-Foodborne-Illness-Costs-Report.pdf-1.pdf. Accessed December 31, 2011.

Lead Poisoning

Overview

A high level of lead in the bloodstream can lead to learning disabilities, behavioral problems, seizures and even death. The primary sources for lead poisoning in children are lead chips and 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 the 2010 American Community Survey estimates.

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

Both the City and County health departments provide lead screening for high risk populations and refer children with high blood levels for treatment. Most children with elevated blood levels live in pre-1950 housing. Within the 610 Loop, 25% of homes were built before 1950; in some ZIP codes, the number is as high as 35%.

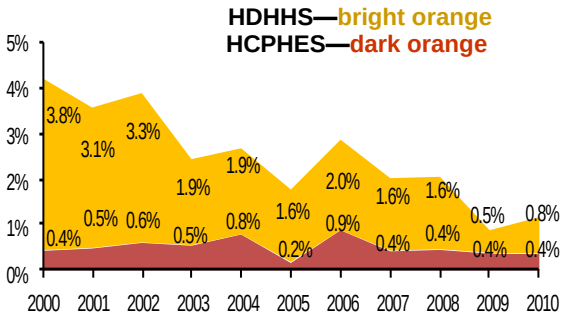
In 2011, the HDHHS Bureau of Community and Children's Environmental Health found extremely high levels of lead in imported terra cotta pottery, often made in Mexico, and reported concerns to the FDA. As a result, the FDA developed new guidelines regarding import of this ceramic cookware.

Trends: Houston/Harris County 2000-2010

HDHHS and HCPHES test children in high risk areas for blood lead levels. In 2010, HDHHS tested 20,688 children under age six and identified 167 (0.8%) with elevated blood lead levels. HCPHES tested 32,271 children under age six and identified 114 (0.4%) children with elevated blood lead levels. The chart to the right shows the trends over time from testing these children.

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.

Percentage of Tested Children Under Age Six in Houston & Harris County with Positive Tests for Elevated Blood Lead Levels



Source: HDHHS and HCPHES 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, the 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 2008

Source: HDHHS Bureau of Children's Environmental Health, TDSHS Childhood Lead Poisoning Prevention Registry, 2004.
*High Risk is determined by CDC and HUD for pre-1978 housing.
Note: Map targeted zip codes are those areas in color.

Elevated Lead in Pottery

The pictures below show pottery purchased in Houston with elevated levels of lead, which exceeded the FDA lead use limits.

Source: HDHHS Children's Environmental Health Lead Test Reports

Economic Impact of Lead Poisoning

Lead poisoning can lead to learning disabilities, behavior problems, seizures and even death. Therefore, cost estimates include health care costs, IQ loss, increased special education needs, lower earnings, the impact of behavior problems, and crime.[1]

Returns on investments in lead hazard control are substantial, especially when targeted at early intervention in communities most at risk. These returns have estimated cost savings of:

- Health care $11—$53 billion
- Lifetime earnings $165—$233 billion
- Tax revenue $25—$35 billion
- Special education $30—$146 million
- Attention deficit-hyperactivity—$267 million
- Crime (direct costs)—$1.7 billion.[2]

Each dollar invested in lead paint hazard control results in a return of $17–$221.[2]

Healthy People 2020

Objective EH 8.11: Eliminate elevated blood lead levels in children.

Children Ages 1-to-6 Years with Blood Lead Levels Exceeding 10 µg/dl	
Area	**Percent**
National Baseline 2005-2008	0.9
Target for 2010	0
Houston/Harris County 2010 (from HDHHS and HCPHES case files)	0.5
State of Texas 2010	0.6
United States 2008	0.8

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 and referring identified children to appropriate medical care.
- 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: *http://www.nsc.org/news_resources/Resources/Documents/Lead_Poisoning.pdf*

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

1. Bernard SM. Should the centers for disease control and prevention's childhood lead poisoning intervention level be lowered? *Am J Public Health*. 2003; 93(8):1253–1260. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447949/. Accessed January 3, 2012.
2. Gould E. Childhood lead poisoning: conservative estimates of the social and economic benefits of lead hazard control. *Environ Health Perspect* . 2009;117(7):1162-1167. Available at http://dx.doi.org/10.1289/ehp.0800408. Accessed January 3, 2012.

Neighborhood Concerns

Overview

According to the Health of Houston Survey 2010, neighborhood problems with stray dogs and cats, pollution, crime, and other environmental concerns are more common in lower income parts of Houston/Harris County. In addition, areas with many environmental concerns also contain more residents with health problems.

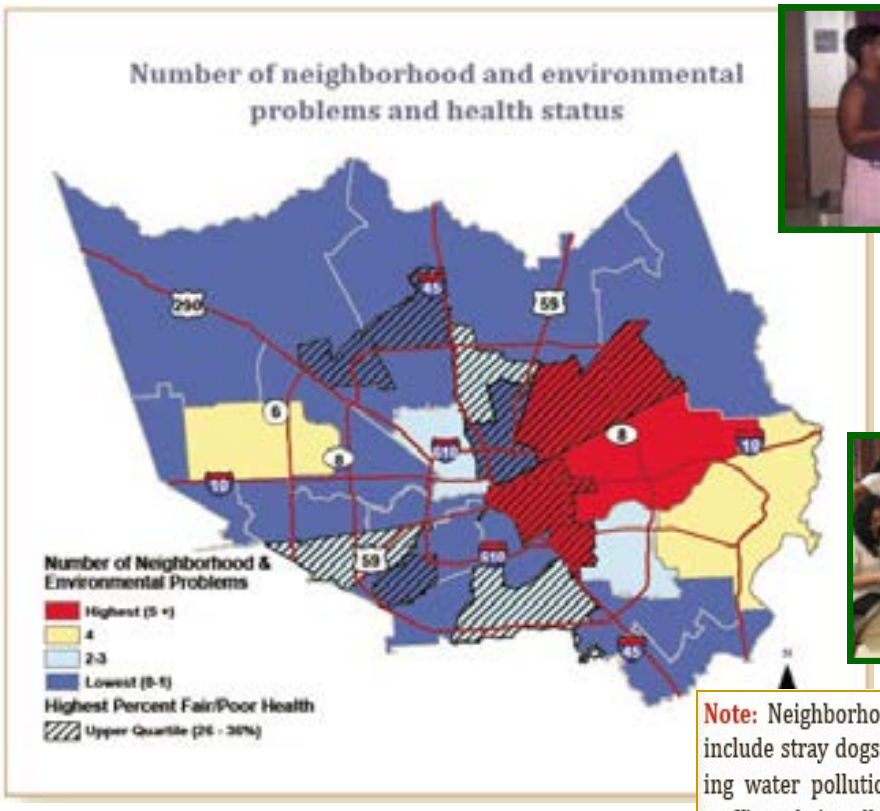
The map below shows the areas where residents reported the most environmental concerns, with red and yellow denoting the highest numbers. These are compared with the hatched parts of the map, which show the highest quartile of those reporting poor or fair health.[1]

Houston area residents listed these problems as their concerns[1], in order of frequency reported:

- Stray dogs/cats 37%
- Crime 26%
- Drinking water 19%
- Dumping 17%
- Air pollution, traffic 17%
- Limited fruits/veggies 16%
- Air pollution, industry 15%
- Water pollution, runoff 10%

Additional concerns reported during HDHHS AIM (Assessment, Intervention, and Mobilization) projects undertaken in select Super Neighborhoods[2] included:

- Need for better educational opportunities and access to health care
- Need for more and better recreational facilities
- Improved public transportation
- Overgrown lots, abandoned homes
- Prostitution/crime/drugs



Map source: Health of Houston Survey 2010 A First Look

Note: Neighborhood and environmental concerns include stray dogs and cats, water pollution, drinking water pollution, dumping, air pollution from traffic and air pollution from industry.

1. Health of Houston Survey. *HHS 2010 A First Look*. Houston, TX: Institute for Health Policy, The University of Texas School of Public Health, 2011, p. 20. Available at https://sph.uth.tmc.edu/research/centers/ihp/health-of-houston-survey-2010/. Accessed February 20, 2012.
2. City of Houston, Planning & Development Department. Available at http://www.houstontx.gov/planning/Demographics/demog_links.html. See also http://www.houstontx.gov/superneighborhoods/index.html. Accessed February 20, 2012.

Health Outcomes

Overarching goals of Healthy People 2020 include:

- Attain high quality, longer lives free of preventable disease, disability, injury, and premature death.
- Achieve health equity, eliminate disparities, and improve the health of all groups.
- Create social and physical environments that promote good health for all.
- Promote quality of life, healthy development, and healthy behaviors across all life stages.

Healthy People 2020

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 2008, the most recent year for which comprehensive vital statistics data are available, there were 21,922 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.

Differences in mortality rates are present among racial and ethnic groups. For example, while heart disease was the leading cause of death for all races in Harris County in 2008, the age-adjusted mortality rate for heart disease among black residents was 220.3 deaths per 100,000 population, compared with 218.3 among white residents and 142.5 among Hispanic residents.

Leading Causes of Mortality, Harris County, 2008

Cause of Death	Total Deaths	Age-Adjusted Mortality Rate*
All Causes	21,922	815.0
Heart Disease	4,924	196.2
Cancer	4,896	177.3
Accidents	1,373	41.1
Chronic Lower Respiratory Disease	870	36.2
Diabetes	693	25.0
Stroke	577	24.6
Alzheimer's Disease	459	21.7
Septicemia	289	20.4
Influenza and Pneumonia	415	16.9
Chronic Liver Disease and Cirrhosis	361	10.8
Suicide	410	10.7
Homicide	388	9.3
Kidney Disease	215	8.7
HIV/AIDS	263	7.3

*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, Center for Health Statistics, 2011. Available at http://soupfin.tdh.state.tx.us/. Accessed October 15, 2011.

Leading Causes of Mortality by Race, Harris County, 2008			
Cause of Death	Age-Adjusted Mortality Rate* and (Rank)		
	White	Black	Hispanic
All Causes	934.3	939.9	602.7
Heart Disease	218.3 (1)	220.3 (1)	142.5 (1)
Cancer	190.0 (2)	228.8 (2)	125.9 (2)
Accidents	74.4 (3)	17.5 (10)	19.0 (6)
Stroke	24.6 (7)	33.7 (5)	18.8 (7)
Chronic Lower Respiratory Disease	49.2 (4)	26.7 (6)	13.9 (9)
Diabetes	21.2 (8)	36.2 (3)	31.9 (3)
Alzheimer's Disease	25.1 (6)	16.8 (10)	15.8 (8)
Septicemia	20.4 (9)	34.9 (4)	19.3 (5)
Influenza / Pneumonia	15.1 (11)	24.0 (7)	19.6 (4)
Kidney Disease	6.2 (18)	17.7 (9)	10.5 (10)
Homicide	19.1 (10)	8.3 (11)	3.9 (11)
Chronic Liver Disease and Cirrhosis	11.8 (12)	7.5 (12)	17.9 (8)
Suicide	25.9 (5)	** (13)	** (13)
HIV/AIDS	4.6 (113)	20.8 (8)	3.1 (12)
*Deaths per 100,000 persons, age-adjusted to the 2000 Census population ** Rate could not be calculated			

Source: Texas Department of State Health Services, Center for Health Statistics, 2011. Available at http://soupfin.tdh.state.tx.us/. Accessed October 15, 2011.

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Maternal and Infant Health

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

Pregnancy can provide an opportunity to identify and address existing and future health risks for women and their children. Healthy birth outcomes and early identification and treatment of health risks can prevent death and disability and improve the quality of children's lives.

The risk of maternal and infant mortality and pregnancy-related complications can be reduced by increasing access to quality preconception (before pregnancy) and interconception (between pregnancies) care.

Infant mortality is an important measure of a nation's health and a worldwide indicator of health status and social well-being. In the United States, racial and ethnic disparities in mortality and morbidity still exist, particularly for African Americans. The rate for African Americans remains over twice that of whites.

Healthy People 2020

Adolescent Pregnancy

Overview

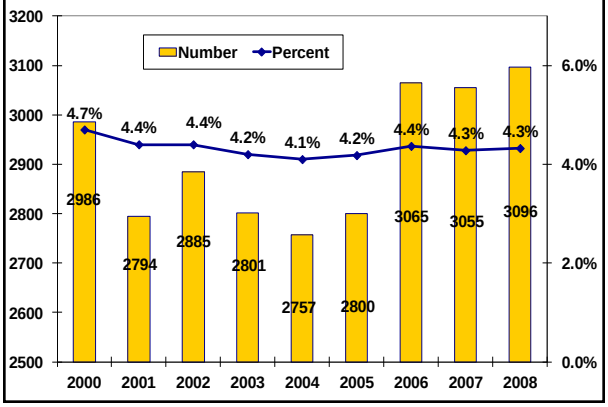
According to TDSHS, teenage mothers are less likely to receive adequate prenatal care, are less likely to gain adequate weight during pregnancy, and are more likely to smoke than older mothers. Children born to teenage mothers are also at greater risk of low birth weight, disability and mortality during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

School is typically more difficult for children of young mothers. They are 50% more likely to repeat a grade, and in general perform less well on standardized tests. The children of teen parents suffer higher rates of abuse and neglect than children of mothers who delay child bearing.

Higher rates of premature births among younger mothers can be seen in Harris County in 2008. According to TDSHS, 14.3% of the births to mothers aged 10 -19 were premature, as compared to 12.3% of the births to mothers aged 20-29.

Trends: Rates and Cases in Houston/Harris County 2000-2008

Births to Mothers Ages 15-17 in Harris County
Number of Births and Percent of All Births



Source: TDSHS

TDSHS 2008 vital statistics data reported that in Harris County there were 3,240 births to mothers ages 17 and younger. This represents 4.5% of all births in Harris County.

In comparison, in Texas, 4.9% of mothers were age 17 and younger, as were 3.3% of mothers nationwide. Following the national trend, births to teenage mothers in Harris County have declined since the 1990's.

TDSHS Vital Statistics 2008 Annual Report indicate a pregnancy rate of 27.8 per 1,000 teenage girls (ages 13-17) in Harris County compared to 26.1 for teenage girls in all of Texas. The pregnancy rate in 2009 for Harris County 15-17 year olds was 42.1 per 1,000 females 15-17 and 38.4 for Texas.

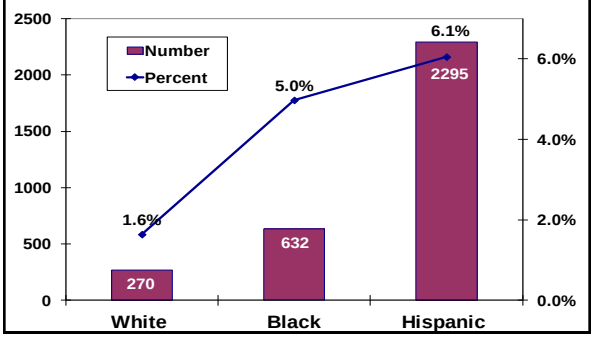
Population Differences

TDSHS reports indicate that of the births to teen mothers ages 10 -17 years of age and younger in Harris County, 8.3% were born to white mothers, 19.5% were born to black mothers, and 70.8% were born to Hispanic mothers.

Compared to older mothers, adolescent mothers are less likely to receive early and regular prenatal care, more likely to smoke during pregnancy, more likely to deliver preterm, and their babies are more likely to die in the first year of life.[1]

1. March of Dimes. Available at http://www.marchofdimes.com/professionals/14332_1159.asp. Accessed February 16, 2012.

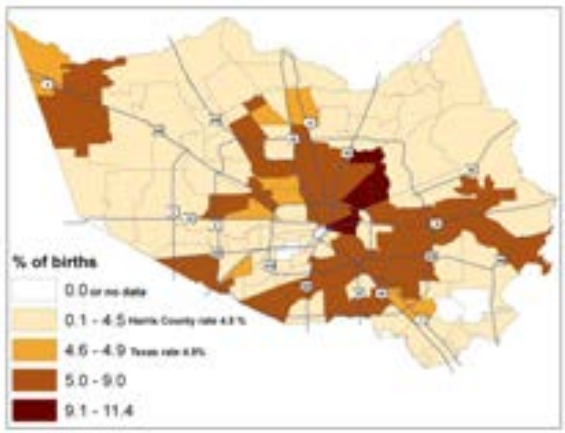
Births to Mothers 17 and Younger Harris County, 2008
Number and Percent of All Births in Racial Group



Source: TDSHS

Geographic Distribution

Percent Births to Mothers 17 Years and Younger 2008 Harris County



Location based on mother's residence zip code
Source: Data from TDSHS, Center for Health Statistics, March 2011. Map by June Hanke, Community Health and Wellness HCHD.

Economic Impact of Adolescent Pregnancy

Adolescent pregnancy and childbirth costs U.S. taxpayers an estimated $9 billion per year due to increased health care and foster care costs, higher incarceration rates among children of teen parents, and loss of tax revenue from teen mothers who earn less money because they have less education.[2]

Adolescent pregnancies in Texas cost at least $1.2 billion in 2008. Medicaid and CHIP programs for children born to teen mothers and child welfare were $221 million and $111 million, respectively, of the total cost. For children of teen mothers who reached adolescence or young adulthood, $175 million of the total cost was spent for increased rates of incarceration and $378 million was lost in tax revenue associated with decreased earnings and spending.[3]

Comprehensive educational programs that address a broad range of social and behavioral issues such as access to birth control, life skill development, academic support, and job training have been shown to reduce adolescent participants' pregnancy rates.[4]

Healthy People 2020

Objective FP-8.1: Reduce the pregnancy rate among adolescent females aged 15 to 17 years

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

Area	Rate
National Baseline 2005	40.2
Target for 2020	36.2
Harris County 2009	42.1
State of Texas 2009	38.4
United States 2005	40.2

Public Health Actions

- Advocate for prevention services and education.
- 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 to provide family support and education 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.thenationalcampaign.org*

Planned Parenthood Gulf Coast: *www.ppgulfcoast.org*

Teen Pregnancy in the Black Community: *www.blackwomenshealth.com/2006/articles.php?id=91*

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

2. Centers of Disease Control and Prevention, Chronic Disease Prevention and Health Promotion. Teen pregnancy. CDC Website. Available at http://www.cdc.gov/chronicdisease/resources/publications/aag/teen-preg.htm. Accessed January 2, 2012.
3. The National Campaign to Prevent Teen and Unplanned Pregnancy, Counting It Up. The public costs of teen childbearing in Texas in 2008. NCPTUP Website. Available at http://www.thenationalcampaign.org/costs/pdf/counting-it-up/fact-sheet-texas. Accessed January 2, 2012.
4. Lonczak HS, Abbott RD, Hawkins JD, Kosterman R, Catalano RF. Effects of the Seattle social development project on sexual behavior, pregnancy, birth, and sexually transmitted disease outcomes by age 21 years. *Arch Pediatr Adolesc Med.* 2002;156 (5):438–447. Available at http://archpedi.ama-assn.org/cgi/content/full/156/5/438. Accessed January 2, 2012.

Maternal Mortality & Morbidity

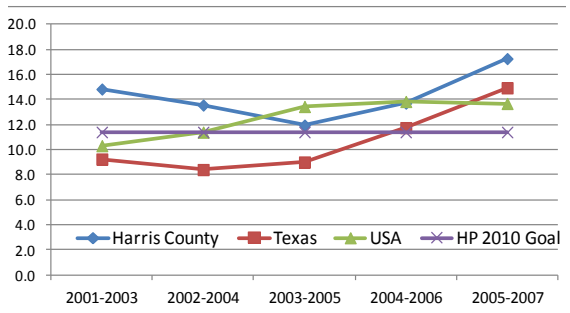
Overview

Maternal mortality is a sentinel event and is a small percentage of the cases of severe maternal morbidity (illness or disease). Researchers estimate that for every one maternal death another 50 women experience a severe complication resulting from pregnancy.[1] Maternal deaths are infrequent (a total of 27 deaths in 2008 in Harris County) but pregnancy related deaths are increasing in the U.S. and Houston/ Harris County.

Factors that increase a women's risk of dying include: obesity; chronic medical conditions such as hypertension, preexisting cardiac and renal disease, diabetes, and asthma; having a cesarean section; no prenatal care; age 35 years or older; and multiparity such as having twins or triplets. Additional risk factors such as clinical issues and socioeconomic status also contribute to maternal deaths.[2,3,4]

Trends: Harris County, Texas and the U.S. 2001 - 2007

Maternal Mortality Rate per 100,000 Live Births



Source: CDC Wonder Data, January 2011.

The death of a mother is considered a sentinel event that is a measure of a community's medical care system.

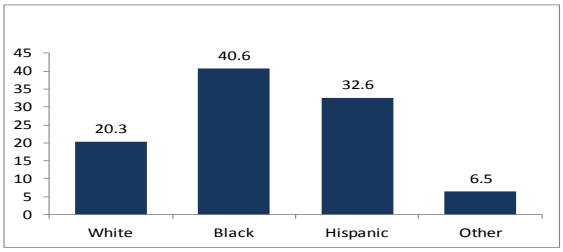
The maternal mortality rate in the United States was relatively stable from 2003-2007. However, maternal deaths in Harris County continued to rise during that time. Deaths rose from 12.0 per 100,000 live births in 2003-2005, to 13.7 in 2004 -2006 and continued to increase to 17.3 in 2005 -2007. Pregnancy related mortality has been increasing in Harris County, Texas and the U.S.

Population Differences

TDSHS reports for Harris County show marked racial disparities in maternal mortality, a pattern also seen in many areas of the U.S. Black women have the highest mortality rates of all races, accounting for 40.6% of the deaths for 1999-2008. **About 80% of maternal deaths were to minority women.** The age of the mother is also important in the maternal deaths. For 1999-2007 mothers less than 19 years old accounted for 4.5% of deaths and mothers over age 35 accounted for 28.9 % of the deaths.

Percent of Maternal Deaths by Race/Ethnicity Harris County 1999-2008

Maternal deaths during pregnancy or within 42 days of delivery

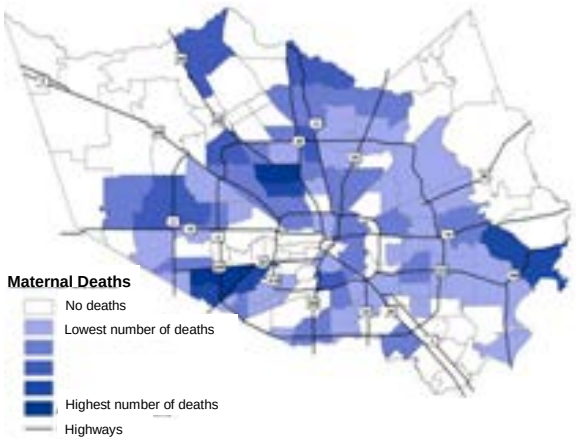


Source: TDSHS, April 2011

[1]1. Callaghan, WM, MacKay AP, Berg CJ. Identification of severe maternal morbidity during delivery hospitalizations, United States 1999-2003. *Amer J of Obs & Gyn.* 2008;199(2):133.e1-133.e8. Available at http://www.ajog.org/article/S0002-9378(07)02332-0/abstract. Accessed November 2011.
2. Florida Department of Health. PAMR 1999-2008 Florida pregnancy-related mortality report: Why are Florida mothers continuing to die? Florida Department of Health website. Available at http://www.doh.state.fl.us/Family/mch/pamr/1999_2008_pamr_report.pdf. Accessed November 2011.
3. California Dept. of Public Health. The California pregnancy-associated mortality review. Report from 2002-2003 Maternal death reviews. April 2011. Available at http://www.cdph.ca.gov/data/statistics/Pages/CaliforniaPregnancy-AssociatedMortalityReview.aspx. Accessed November 2011.
4. New York City Maternal Mortality Review Project Team. Pregnancy associated mortality, New York City 2001-2005. New York City Department of Health and Mental Hygiene. Available at http://www.nyc.gov/html/doh/downloads/pdf/ms/ms-report-online.pdf. Accessed November 2011.

Geographic Distribution

Maternal Deaths, Harris County 1999-2008



Number of maternal deaths births in Harris County 1999 to 2008 combined data.
Source: Data TDSHS, Map Harris County Hospital District

Economic Impact of Adverse Pregnancy Outcomes

The Agency for Health Care Research and Quality identified pregnancy and delivery as the nation's most expensive condition for hospitalization in 2008.[5]

Deliveries with associated complications are significantly more expensive than those without problems. Maternal hospitalizations with complications cost $4,100 for non-delivery stays and $3,900 for delivery stays, compared to deliveries without complications ($2,600) in 2008.[6] Total costs for hospitalizations for complications in the pregnancy and delivery were $17.4 billion nationwide, nearly 5% of total hospital costs.

Cesarean delivery is associated with a much higher risk of complications than vaginal delivery. U.S. cesarean section rates increased 53% from 1996 to 2007 and were 32% of all births in 2007. Harris County is similar with 32% of births by cesarean section.

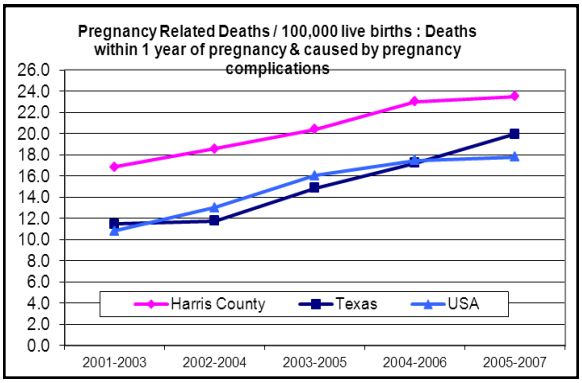
Women with a severe morbidity such as hemorrhage, eclampsia, pulmonary embolism, renal failure or stroke also have higher hospital costs. Women who have disability resulting from complications of pregnancy, such as a stroke, will have life long health care expenses.

Maternal deaths are costly beyond medical expenses. Each maternal life lost to premature death is estimated at a loss of $ 3-5 million dollars to society.[3]

Healthy People 2020

Objective MICH–5 : Reduce the maternal mortality rate

Maternal Deaths Rate per 100,000 live births	
Area	**Rate**
National Baseline 2007	12.7
Target for 2020	11.4
Harris County 2005-2007	17.3
State of Texas 2005-2007	14.9
United States 2005-2007	13.7



Source: TDSHS with analysis by Harris County Hospital District

Public Health Actions

- Monitor health rates and advocate for improved assessment methods such as the Maternal Mortality Review Board to identify causes and make recommendations to prevent maternal deaths and morbidity.
- Educate women on risk factors identified as increasing risk for death and morbidity.
- Mobilize community partnerships and action to improve maternal health.

For More Information

California Maternal Care Collaborative:
www.cmqcc.org/maternal_mortality
Every Mother Counts:
www.everymothercounts.org/
Amnesty International:
www.amnestyusa.org/our-work/campaigns/demand-dignity/maternal-health-is-a-human-right
AGOG: *www.acog.org/departments/*

5. Weir, LM, Andrews, RM. The national hospital bill: The most expensive conditions by payer, 2008. Statistical brief #107, March 2011 *Agency for Healthcare Research and Quality*. Available at http://www.hcup-us.ahrq.gov/reports/statbriefs/sb107.pdf. Accessed November 2011.
6. Elixhauser A, Wier LM. Complicating conditions of pregnancy and childbirth 2008. *Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project*. Statistical Brief #113, May 2011. Available at http://www.hcup-us.ahrq.gov/reports/statbriefs/sb113.pdf. Accessed Nov. 2011.

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, infant death (less than a year of age), and maternal death.

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 details about this topic.

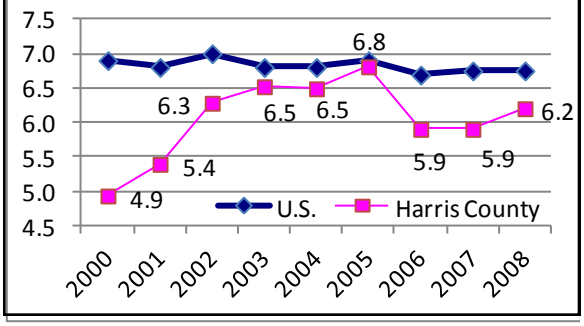
A medical visit prior to becoming pregnant is also crucial for women with chronic disorders such as diabetes and high blood pressure to assure a healthy pregnancy and outcome.[1]

Breastfeeding reduces infant mortality due to common childhood illnesses (such as diarrhea or pneumonia) and helps with a quicker recovery from illnesses.[2] Breastfeeding is not recommended for babies whose mothers have HIV infection.

Positioning infants on their backs to sleep, and creating a safe sleep environment also serve as protective measures to reduce the incidence of SIDS.[3]

Trends: Houston and the U.S. 2000-2008

Infant Mortality Rate per 1,000 Live Births



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]

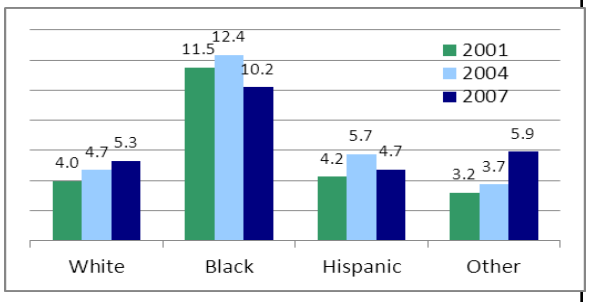
The infant mortality rate (deaths per 1,000 in the first year of life) in the United States has been relatively stable nationwide over the past decade but remains one of the highest infant mortality rates of any industrialized nation. The U.S. rate in 2006 of 6.7 deaths per 1,000 live births tops those of Japan (2.6), Sweden (2.8), Germany (3.8), Australia (4.7), and England (5.0).[5]

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 highest rate of infant mortality among all races, with a rate of 12.4 per 1,000 live births in 2000 which decreased to 10.2 in 2007.

The age of the mother is also 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.

Infant Mortality Rates in Harris County, 2001-2007



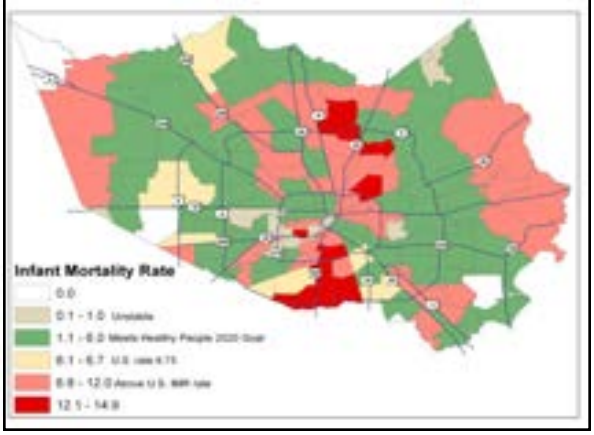
Infant mortality rate is deaths per 1,000 live births.

Source: TDSHS, Infant Mortality Rate Analyzer

1. March of Dimes. Pre-term birth. Available at www.marchofdimes.com professionals/14332_1157.asp.
2. World Health Organization website. Available at http://www.who.int/nutrition/topics/exclusive_breastfeeding/en/. Accessed February 20, 2012.
3. National Institute of Child Health and Human Development website. Available at http://www.nichd.nih.gov/sids/. Accessed February 20, 2012.
4. National Fetal and Infant Mortality Review. Making a difference in the community. 2009. Available at http://www.nfimr.org/site/assets/docs/NFIMRBrochure.pdf. Accessed February 20, 2012.
5. U.S. Department of Health and Human Services, Health Resources and Services Administration website. Available at http://www.mchb.hrsa.gov/chusa10/hstat/hsi/desc/208iimHsc.html. Accessed February 20, 2012.

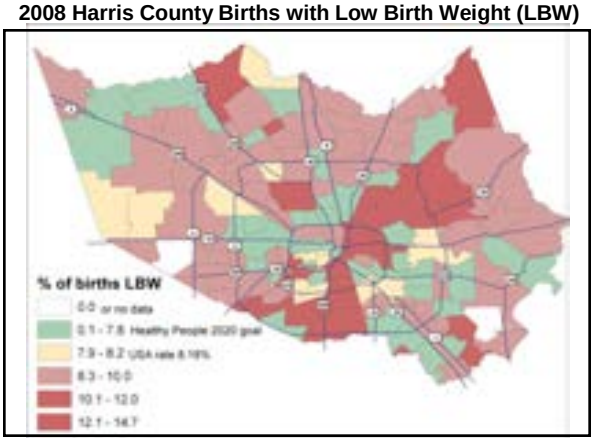
Geographic Distribution

Infant Mortality in Houston Harris County 2004-2008



Rates of infant death per 1,000 live births five year aggregate (2004-2008) Data. source: Texas Department of State Health Services, Center for Health Statistics, March 2011. Map: Community Health and Wellness HCHD.

2008 Harris County Births with Low Birth Weight (LBW)



Source: Texas Department of State Health Services, Center for Health Statistics, March 2011. June Hanke, community Health and Wellness HCHD.

Economic Impact of Adverse Pregnancy Outcomes

Approximately 11% of children covered by employer health plans are born prematurely. Infant and maternity costs for a premature infant were $64,713 compared to an infant born without complications at $15,047 in 2005.[6]

U.S. costs for preterm birth were estimated at a minimum of $26.2 billion in 2005.[7] These costs include medical care ($1.9 billion) early intervention services ($611 million), and costs for disabilities more common in premature infants of special education ($1.1 billion) and lost household and labor market productivity ($5.7 billion).[7]

Healthy People 2020

Objective MICH-1.3: Reduce the number of infant deaths (within one year)

Infant Deaths Rate per 1,000 live births	
Area	**Rate**
National Baseline 2006	6.7
Target for 2020	6.0
Harris County 2008	6.2
State of Texas 2008	6.1
United States 2008	6.8

Economic Impact Harris County

In Harris County in 2009 the average cost paid by Medicaid for a hospitalization of a low birth weight (less than 2500 g) baby was $61,841 and for a very low birth weight (less than 1500g) baby was $152,792.[8]

Public Health Actions

- Monitor health status to identify and solve community health problems by tracking infant mortality rates and publicizing these results for the community.
- Promote healthy practices through pregnancy and during early infant development.
- Serve as a safety net when services are otherwise unavailable.
- Mobilize community partnership and action to identify barriers to healthy pregnancy and medical care, and develop solutions.

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*

National Fetal and Infant Mortality Review: *www.nfirm.org*

6. March of Dimes. Available at http://www.marchofdimes.com/aboutus/22684_55250.asp Accessed February 20, 2012.
7. Behrman RE, Butler AS, Eds. *Preterm Birth: Causes, Consequences and Prevention.* National Academies Press; 2007, p398. Available at http://www.nap.edu/openbook.php?record_id=11622&page=398. Accessed February 20, 2012.
8. Medicaid FFS/PCCM & HMO cost for Harris County newborns by birth type for CY2006-2009 Research Team, Strategic Decision Support HHSC, 12/13/2010. Accessed February 20, 2012.

Pregnancy/Fetal Outcomes

Overview

Fetal health and mortality are important indicators for assessing pregnancy outcomes but are often overlooked as public health concerns.

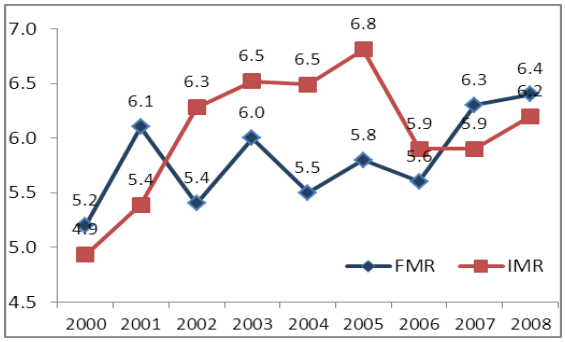
Fetal death, sometimes called stillbirth, refers to intrauterine fetal death at anytime during pregnancy. When the fetus is over 20 weeks of gestation, records are maintained, so that vital statistics are available to track these deaths.[1] Fetal deaths prior to 20 weeks gestation are generally referred to as miscarriages and are not tracked through death certificates.

CDC reports that there are as many fetal deaths (over 20 weeks gestation) as infant mortalities. Factors that contribute to fetal death include:

- Chronic health conditions such as obesity, hypertension, smoking and diabetes[2]
- Teenagers
- Twins or other multiple pregnancies
- Mothers over 35 years
- Women with more than two previous pregnancies
- Black and native American
- Lack of prenatal care[1]

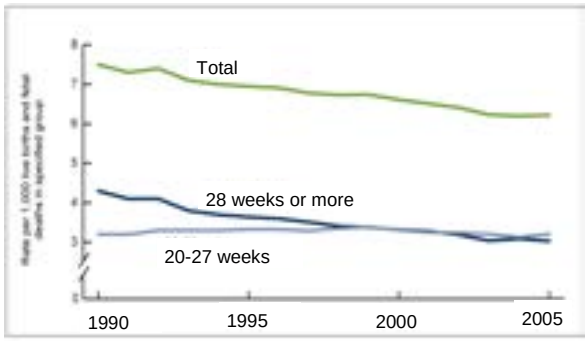
Trends: Infant and Fetal Mortality Rates

Infant & Fetal Mortality Rate per 1,000 Live Births
Harris County 2000-2008



Source: TDSHS Include unknown and 20+ week fetal deaths

Fetal Mortality Rates, by Period of Gestation
United States 1990-2005[2]



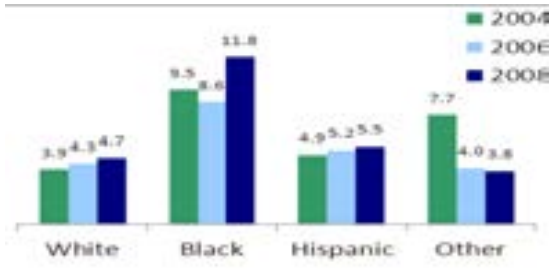
Source: CDC/NCHS. National Vital Statistics System

Population Differences

TDSHS reports for Harris County show marked racial disparities in fetal mortality, a pattern also seen in many areas of the U.S. Blacks have the highest rate of fetal mortality, with a rate of 9.5 per 1,000 live births + fetal deaths in 2004 which increased to 11.8 in 2007.

As with infant mortality, U.S data shows that age of the mother is also important in the birth outcome. Teen mothers and mothers over age 35 have higher rates of fetal mortality. Women ages 25-29 have the lowest rates.[1]

Fetal Mortality Ratio in Harris County, 2004-2008



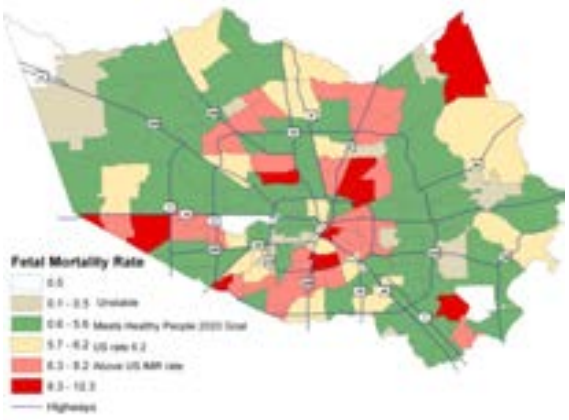
Fetal mortality rate is deaths per 1,000 live births + fetal deaths. Fetal death is gestation of 20 weeks and over, including unknown gestation.

Source: TDSHS, Infant Mortality Rate Analyzer

3. MacDorman MF, Kirmeyer S. The challenge of fetal mortality. NCHS data brief, no.16, April 2009. *National Center for Health Statistics*. Available at http://www.cdc.gov/nchs/data/databriefs/db16.htm. Accessed February 21, 2012.
4. LA Best Babies Network. Interconception care fact sheet. LA Best Babies website. Available at www.LABestBabies.org. Accessed November, 2011.

Geographic Distribution

Fetal Mortality in Houston/Harris County 2004-2008



Fetal Mortality Rate (FMR)
Rates of fetal death per 1,000 live births plus fetal deaths, five year aggregate (2004-2008) data. Source: Texas Department of State Health Services, Center for Health Statistics, March 2011. Map by Community Health and Wellness Harris County Hospital District.

In 2008, Houston/Harris County registered:

- ***71,604 live births***
- ***447 infant deaths***
- ***459 fetal deaths***

Causes of Fetal Death[3]

- *Birth defects are present in 15%-20% of stillborn babies*
- *Placental problems cause 25% of stillbirths*
- *Poor fetal growth is present in 40% of stillbirths*
- *Infections involving the mother, fetus or placenta appear to cause 10% to 25% of stillbirths*
- *Chronic health conditions of the mother impact about 10% of stillbirths*
- *Umbilical cord accidents may contribute to 2% to 4% of stillbirths.*

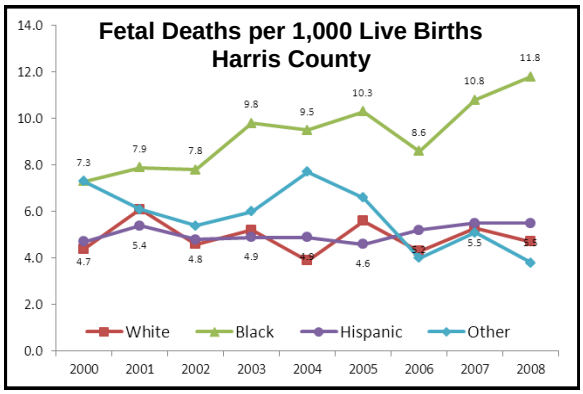
Economic Impact of Fetal Death

The loss of a pregnancy can have major impacts on families. One study showed that relationships have a higher risk of dissolving after miscarriage or stillbirth. Miscarriages affect approximately 15% of pregnancies, and stillbirths affect close to 1% of all births, so many U.S. couples are impacted. In the study population, the chances that a couple would break up following a miscarriage increased by 22%, and after a still birth rose to 40%.[4]

Healthy People 2020

Objective MICH-1.1 Reduce the rate of fetal deaths at 20 or more weeks of gestation

Fetal Deaths Rate per 1,000 live births	
Area	**Rate**
National Baseline 2005	6.2
Target for 2020	5.6
Harris County 2008	6.4
State of Texas 2008	5.7
United States 2005	6.2



Source: TDSHS 2011, with analysis by June Hanke, Harris County Hospital District

Public Health Actions

- Monitor health status to identify and solve health problems by tracking fetal mortality rates and publicizing to the community.
- Educate women about health issues in the preconception and interconception period.
- Mobilize community partnerships and action to identify and solve health problems, with advocacy for maternal and infant health and development of policies to support the health of mothers.

For More Information

Centers for Disease Control (CDC): *http://www.cdc.gov/nchs/fetal_death.htm*

National Fetal–Infant Mortality Review Program: *http://www.nfimr.org/*

American College of Obstetricians and Gynecologists: *www.acog.org*

March of Dimes: *www.marchofdimes.org*

[3]March of Dimes website. Available at http://www.marchofdimes.com/baby/loss_stillbirth.html. Accessed February 21, 2012.
[4]Gold K. Marriage and cohabitation outcomes after pregnancy loss. *Pediatrics,* 2010; 125(5):e1202-e1207. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2883880/. Accessed February 22, 2012.

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Chronic Diseases

Chronic diseases such as heart disease, cancer and diabetes are responsible for seven out of every ten deaths each year. Costs associated with these three chronic diseases account for 75% of the nation's health spending.

Diabetes also poses a significant public health challenge for the United States. In 2010, 1.9 million new cases of diabetes were diagnosed in people over 20 years of age.

Arthritis is the leading cause of disability in the United States, affecting one in five adults.

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 2020

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. According to 2010 BRFSS data, 5.1% of surveyed adults living in the Houston-Baytown-Sugar Land MSA reported they had been diagnosed with some form of heart disease, compared with 6.6% of U.S. adults.

Locally, more white and black BRFSS respondents reported having been diagnosed with heart disease than Hispanic respondents—5.7% of white respondents and 9.0% of black respondents compared to 2.5% of Hispanic respondents. Over 16% of persons over age 65 reported they had been given a diagnosis of some form of heart disease.

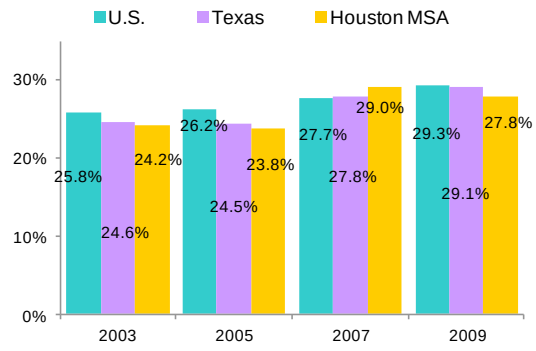
Heart disease is the leading cause of death both in the US and in Houston/Harris County. Stroke is the 6th leading cause of death in Harris County. Lowering/controlling cholesterol and blood pressure can reduce rates of CVD.

Trends: Houston/Harris County 2003-2009

BRFSS 2009 data show that among adults surveyed in the Houston area MSA, 72.5% have had their cholesterol checked in the past five years, up from 69.2% in 2005 and 70.4% in 2007. In 2009, 72.0% of Texas and 77.5% of U.S. adults reported that they had their cholesterol checked in the past five years. Of Houston area MSA respondents, 41.6% had been told their blood cholesterol was high in 2009, compared to 40.9% in Texas and 38.0% nationwide.

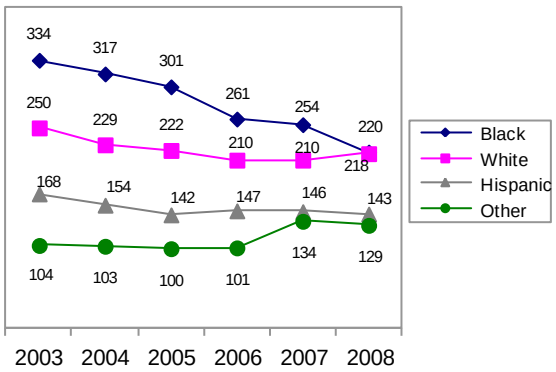
Even modest elevations in blood pressure increase the risk of CVD. BRFSS 2009 data show that 27.8% of surveyed Houston area MSA adults have been diagnosed with high blood pressure, compared with 29.1% of Texas adults and 29.3% of U.S. adults.

High Blood Pressure Awareness, Adults 2003-2009



Source: TDSHS BRFSS

Heart Disease Mortality Rate, Harris County 2003-2008
Rate per 100,000 Population



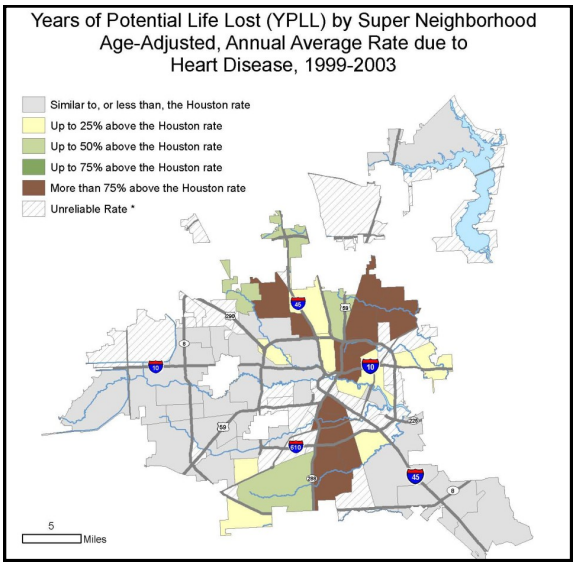
Source: TDSHS

Population Differences

Mortality rates for heart disease vary among demographic groups in Harris County, with higher rates among males in all racial/ethnic groups. The overall rate for men in 2008 was 244.5 deaths per 100,000 compared to women at 159.5 per 100,000.

High blood pressure is often a component of heart disease. In the Houston area MSA BFRSS survey, in 2009, Hispanics were least likely to report high blood pressure, at 21.8%, compared to 42.2% of blacks and 28.2% of whites. The percentage of those reporting high blood pressure rose with age. Only 5.7% of those in age group 18-29 reported high blood pressure, compared to 15.1% at age 30-44, 39.2% at age 45-64, and 65.1% at age 65+.

Geographic Differences



Source: HDHHS Community Health Statistics. Note: Age-adjusted rates are not presented for areas with fewer than 25 deaths
Years of Potential Life Lost is an estimate of the years of life lost if a person dies before the age of 65.

Economic Impact of Heart Disease and Stroke

In the United States, heart disease and stroke are the first and third leading causes of death. Heart disease and stroke cause more than one -third of all U.S. deaths.[1] Every 39 seconds, someone dies from cardiovascular disease (heart disease and stroke combined) or its complications.

In 2010, the national cost of cardiovascular disease (CVD) was estimated at $444 billion. One in every six health care dollars is going to treat heart disease and stroke.[1] By 2030, two in five Americans will have some form of CVD. Total direct and non-direct medical costs are projected to exceed $1 trillion.[3]

In Texas, 2007 hospitalization costs for CVD were over $11 billion. Texas 2005 Medicaid costs were over $200 million.[4] In the Houston-Baytown-Sugar Land MSA, hospital discharge data show that hospital charges were over $636 million for congestive heart failure. Additionally, stroke hospital charges combined cost over $583 million.[5]

Healthy People 2020

Objective HDS-2: Reduce stroke deaths

Rate per 100,000 of Deaths from Stroke	
Area	**Rate**
National Baseline 2007	42.2
Target for 2020	33.8
Harris County 2008	49.6
State of Texas 2008	49.4
United States 2009	42.0

Age-Adjusted to the 2000 Standard Population

Public Health Actions

- Mobilize community partnerships to improve health awareness and health status 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 personal health service program to provide low income, under-insured or uninsured residents with knowledge, skills and opportunities to delay and control cardiovascular and other chronic diseases.
- Link people with a primary care clinic and establish a medical home.
- 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/facts/facts07.pdf*

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

American Heart Association: *www.americanheart.org*

American Heart Association (Spanish): *www.goredcorazon.org/enes/*

1. CDC. *Heart Disease & Stroke Prevention.* Available at http://www.cdc.gov/chronicdisease/resources/publications/AAG/dhdsp.htm. Accessed October 29, 2011.
2. American Heart Association. Forecasting the Future of Cardiovascular Disease in the United States. Available at http://www.heart.org. Accessed November 18, 2011.
3. American Heart Association. Forecasting the Future of Cardiovascular Disease in the United States. Available at http://www.heart.org/HEARTORG/Advocate/IssuesandCampaigns/Forecasting-the-Future-of-Cardiovascular-Disease-in-the-United-Cardiovascular-Disease-in-the-United-States_UCM_321631_Article.jsp. Accessed November 18, 2011.
4. TDSHS. TDSHS website. Available at http://www.dshs.state.tx.us/wellness/cnclhome.shtm The Texas Council on Cardiovascular Disease and Stroke 2010 Legislative Report. Accessed November 18, 2011.

Cancer

Overview

Cancer is a disease caused by an abnormal growth of cells. The cells tend to proliferate in an uncontrolled way and in some cases, to metastasize or spread. Cancer is not one disease. There are more than 200 varieties of cancer 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.

According to CDC and TDSHS, cancer is the second leading cause of death in the United States and in Texas. TDSHS estimated that 13,279 new cases of cancer would be diagnosed, and 5,065 people would die of cancer in Harris County in 2008.

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

Trends: Harris County 2003-2008

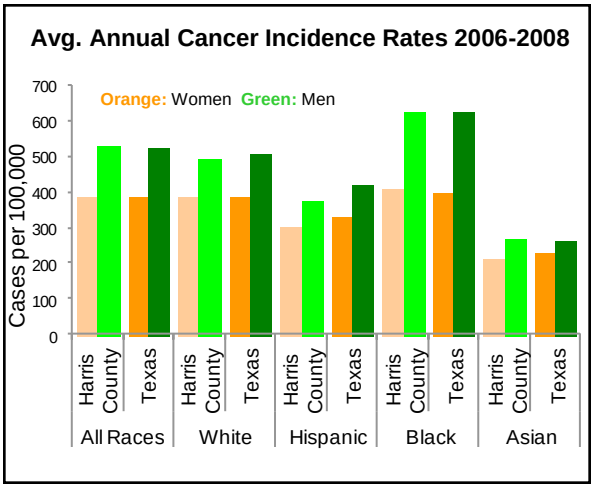
TDSHS statistics for 2006-2008 show the top three cancer diagnoses for men in Harris County were prostate cancer, lung cancer, and colorectal cancer. For women, the top diagnoses were breast cancer, lung cancer, and colorectal cancer. Despite advances in treatment, death cases from all types of cancer have remained consistent in the past few years, around 4,800 deaths per year in Harris County.

Medical advances, such as the vaccine for the Human Papilloma 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.

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

Type of Cancer	2003	2004	2005	2006	2007	2008
Lung	52.2	52.3	51.4	46.9	46.6	47.8
Colo-rectal	18.5	17.9	17.1	18.9	17.9	16.7
Breast	15.2	14.3	13.9	14.1	15.3	14.7
Pancreas	11.0	11.3	10.6	9.3	10.1	10.9
Prostate	10.9	9.4	10.4	9.8	8.8	8.0

Source: TDSHS, Texas Health Data, available at http://soupfin.tdh.state.tx.us/



Population Differences

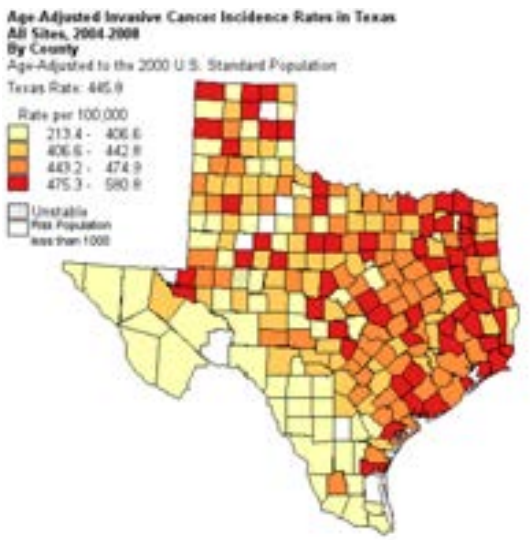
In 2006-2008, TDSHS reported 40,699 new cases of cancer diagnosed in Harris County, a rate of 445.0 cases per 100,000 population. Blacks were more frequently diagnosed with cancer, with a rate of 502.3. Whites were next with a rate of 427.2. Hispanics had a rate of 328.1.

Blacks had the highest rates of cancer diagnoses in Harris County for both men and women: 662.8 per 100,000 for men and 404.5 per 100,000 for women. For both men and women, Asians had the lowest rate of cancer diagnoses (265.6 per 100,000 for men, 213.2 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. Available at http://www.dshs.state.tx.us/tcr/default.shtm. Accessed October 25, 2011. NOTE: Veterans Health Administration hospitals did not report cancers to the Texas Cancer Registry for all of 2008. Case counts and incidence rates are underestimated and should. be interpreted with caution.

Geographic Distribution

New Cases of Invasive Cancer in Texas by County, 2004-2008
Rates per 100,000 population



Source: Texas Cancer Registry, available at http://www.cancer-rates.info/tx/index.php.

Economic Impact of Cancer

Cancer accounts for nearly one out of four deaths in the U.S. In 2011, 571,950 Americans were expected to die of cancer. In 2010, the estimated cost of cancer in the U.S. was $263.8 billion, including $102.8 billion in direct medical costs, $20.9 billion in lost productivity, and $140.1 billion of indirect mortality costs.

In 2007, the National Program of Cancer Registries (NPCR) ranked Texas 38th of the 50 states in cancer incidences (444.2 per 100,000 population).[2] In the same year, the total cost of cancer was estimated at $21.9 billion for the state. Additional costs included the cost of cancer related programs in Texas from government, nonprofit agencies and foundations, which totaled approximately $78.5 million.

The cost of cancer care for drugs and treatment continues to rise. In 2010, a female over 65 with lung cancer was expected to have $60,533 in care costs in the initial diagnosis year, with continuing yearly costs estimated at over $8,130, until the last year of her life, when costs were estimated to increase to $92,524.[4]

Healthy People 2020

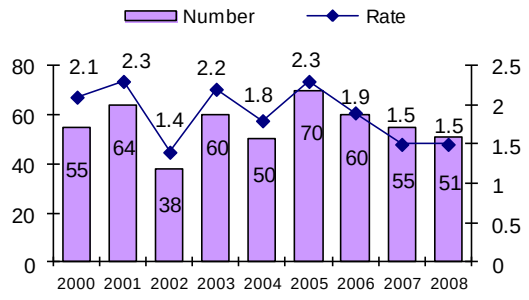
Objective C-1: Reduce the overall cancer death rate

Overall Cancer Mortality Rates
Per 100,000 Population

Area	Rate*
National Baseline 2007	178.4
Target for 2020	160.6
Harris County 2008	177.3
State of Texas 2008	172.4
United States 2009**	173.6

*Age-adjusted to the U.S. Standard Population. ** Preliminary

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 learn to prevent or manage symptoms of cancer, such as healthy living, cessation of smoking, and controlling other risk factors.
- 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/*

1. American Cancer Society. Economic Impact of Cancer. Available at: http://www.cancer.org/Cancer/CancerBasics/economic-impact-of-cancer. Accessed November 28, 2011.
2. CDC. National Program of Cancer Registries. Available at: http://apps.nccd.cdc.gov/uscs/cancersrankedbystate.aspx. Accessed November 28, 2011.
3. Tan, A. The Cost of Cancer in Texas. Available at: texascancer.info/pdfs/Cost_of_Cancer_in_Texas-090309.pdf. Accessed November 28, 2011.
4. National Cancer Institute. Cancer Prevalence and Cost of Care Projections. Available at: http://costprojections.cancer.gov/annual.costs.html. Accessed November 30, 2011.

Diabetes

Insulin injection at home

Overview

Diabetes mellitus is a metabolic disease characterized by persistent hyperglycemia or high blood sugar. It requires medical diagnosis, treatment and lifestyle changes. The U.S. Department of Health and Human Services recognizes three main forms of diabetes: type 1, type 2, and type 3 or gestational diabetes, which is diagnosed during pregnancy. In type 1 diabetes the immune system destroys pancreatic beta cells, and insulin production stops. Type 2 diabetes begins as insulin resistance, a disorder in which the cells do not use insulin properly. Type 3 (gestational diabetes) requires treatment to normalize maternal blood glucose levels to avoid complications in the infant.[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.

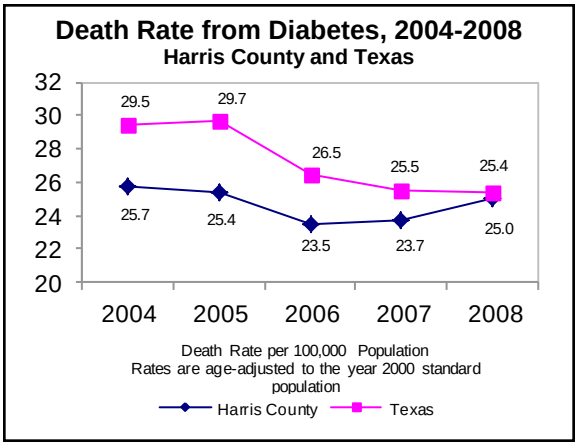
Since the first therapeutic use of insulin (1921), diabetes has been a treatable but chronic condition. Treatment has improved greatly over the years, but patients must be very diligent about maintaining appropriate blood-sugar levels. The main health risks are the long-term complications listed in the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

An estimated 18.8 million Americans have diagnosed diabetes and an additional 7.0 million have diabetes but are undiagnosed. The disease is the fifth leading cause of death in Harris County. According to the 2010 Texas BRFSS, 8.9% of surveyed adults in the Houston-Baytown-Sugar Land MSA reported they had been told by a physician that they have diabetes, compared to 9.7% of Texas surveyed adults and 9.3% of U.S. adults.

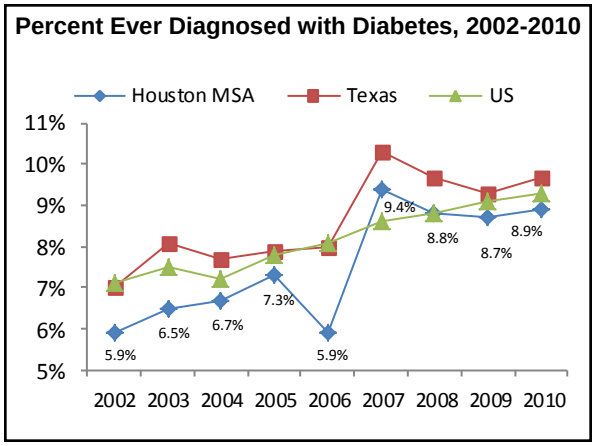
Complications from Diabetes

Medical Condition	Impact
Heart Disease	Two to four times greater risk
Stroke	Two to four times greater risk
High Blood Pressure	67% of diabetic adults
Blindness	Leading cause in adults, age 20-74
Kidney Failure	Leading cause
Nervous System	60-70% of diabetic adults have damage
Amputations	Causes > 60% of lower limb amputations
Dental Disease	Greater frequency and severity in diabetics

Trends: Harris County 2002-2010



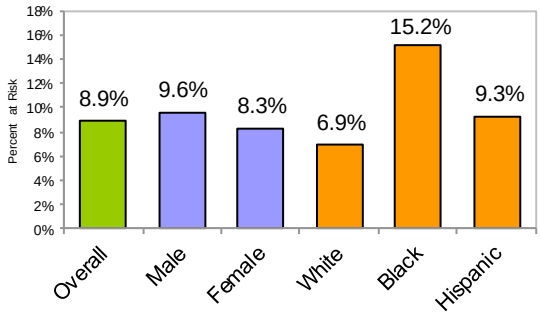
Source: TDSHS



Source: TDSHS, BRFSS Survey

1. US Department of Health and Human Services. National Diabetes Information Clearinghouse (NDIC). National diabetes fact sheet. Available at http://www.diabetes.niddk.nih.gov/dm/pubs/statistics/#fast. Accessed October 26, 2011.

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 2007, over $174 billion was spent on diabetes treatment in the U.S., including $116 billion on direct medical costs and $58 billion attributed to lost productivity and disability payments.[2] In Texas in 2006, total diabetes expenses were estimated at over $12 billion dollars, including over $8.12 billion of medical costs attributed to diabetes and lost productivity exceeding $4.35 billion.[3] Nationally, diabetes was the seventh leading cause of death.[4]

After adjusting for population, age and sex differences, estimated diabetic patients' costs were 2.3 times higher than non-diabetic patients. A 2007 national study estimated that one out of every ten health care dollars went towards diabetes treatments.[1] In Texas, diabetes ranked first for diagnosis and ninth in cost for state FY 2009 Medicaid dollars spent.[5]

Over 1.7 million Texans over the age of eighteen have been diagnosed with diabetes. Additionally, according to 2003-2006 National Health and Nutrition survey, another 440,468 Texas individuals are believed to have undiagnosed diabetes.[6] Due to an aging population and current sedentary lifestyle choices, by 2050, the CDC estimates that up to one third of the American population will have diabetes.[7]

Healthy People 2020

Objective D-3: Reduce the diabetes death rate

Deaths from Diabetes
Per 100,000 Population

Area	Rate
National Baseline 2007*	73.1*
Target for 2020*	65.8*
Harris County 2008	25.0
State of Texas 2008	25.4
United States 2009	22.4

Age adjusted to the 2000 standard population
*The National Baseline and Target are set by Healthy People 2020 and measure deaths related to diabetes. The following three measures track diabetes as listed as the primary cause of death on death certificates.

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 about improving risk factors related to diabetes and chronic disease self-management.
- Link people to needed health assessments and referrals for treatment.

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

2. American Diabetes Association (ADA) National Diabetes Fact Sheet, 2011. Available at http://www.diabetes.org/diabetes-basics/diabetes-statistics/. Accessed November 17, 2011.
3. ADA. Direct and Indirect Costs of Diabetes in the United States Calculator. Available at http://www.diabetesarchive.net/advocacy-and-legalresources/cost-of-diabetes-results.jsp?state=Texas&district=0&DistName=Texas+%28Entire+State%29. Accessed November 17, 2011.
4. CDC Press Release: Number of Americans with Diabetes Expected to Double or Triple by 2050. Available at http://www.cdc.gov/media/pressrel/2010/r101022.html. Accessed November 17, 2011.
5. TDSHS. Texas Diabetes Council. Changing the course, a plan to prevent and control diabetes in Texas, 2012-2013. Available at http://www.dshs.state.tx.us/diabetes/. Accessed November 17, 2011.
6. TDSHS. Texas Diabetes Fact Sheet. Available at http://www.dshs.state.tx.us/WorkArea/DownloadAsset.aspx?id=53559. Accessed November 17, 2011.
7. Center for Disease Control and Prevention. Press Release: Number of Americans with Diabetes Expected to Double or Tripple by 2050. http://www.cdc.gov/media/pressrel/2010/r101022.html. Accessed November 17, 2011.

Arthritis

Overview

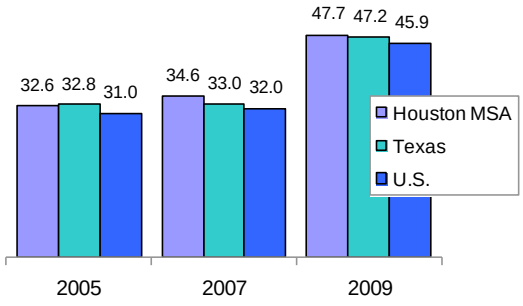
According to the CDC, arthritis, a condition that results in joint pain, swelling, and stiffness, is the leading cause of disability in the U.S. adult population. The term arthritis includes over 100 different diseases and conditions that affect joints and the surrounding tissue. There are more than 100 different types of arthritis. 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 people age, they are more likely to develop symptoms of osteoarthritis. Persons 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.

Arthritis is often experienced with other chronic conditions or diseases. For example, the CDC reports that 45% of Texas adults with diabetes also have arthritis. The same is true for 56% of Texans with heart disease, 40% with high blood pressure, and 36% with high cholesterol.

Trends: Houston/Harris County 2005-2009

Percent of Adults Reporting Activity Limitation Due to Arthritis



Source: TDSHS, BRFSS

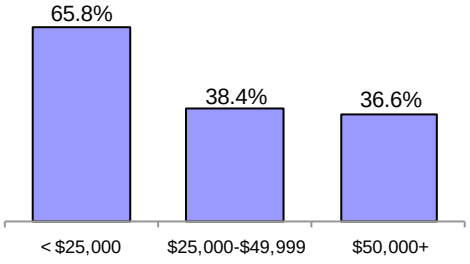
The prevalence of adults who experience activity limitations due to arthritis has been increasing, with a marked change between 2007 and 2009. According to TDSHS BRFSS data, the Houston-Baytown-Sugar Land MSA percent of persons reporting activity limitations due to arthritis or joint symptoms rose from 32.6% in 2005 to 47.7% in 2009. The state of Texas saw an increase in those reporting activity limitations from arthritis, from 32.6% in 2003 to 47.2% in 2009. The 2009 CDC BRFSS report showed that 3,859,00 (22%) of Texan adults aged 18 and older have arthritis.

Population Differences

According to the 2009 BRFSS, in the Houston-Baytown-Sugar Land MSA, adults with incomes less than $25,000 were more likely to report having arthritis (65.8%) compared to those with higher incomes. The pattern is also seen at the state and national levels.

Arthritis is more likely to be diagnosed as age increases. In addition, most forms of arthritis are more common in women, who account for 60% of all persons with arthritis. One exception is gout, which is more common in men.

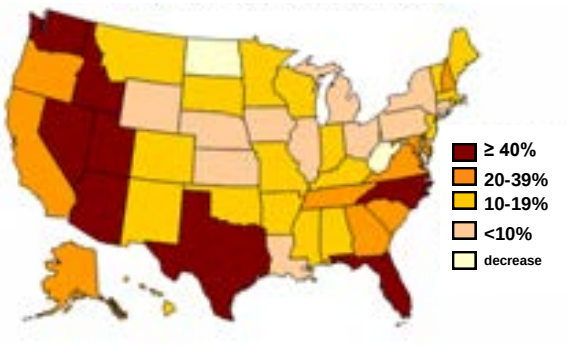
Percent Adults Reporting Some Form of Arthritis Houston-Baytown-Sugar Land MSA, 2009



Source: TDSHS, BRFSS

Geographic Distribution

Projected Percent Increase Adults with Arthritis from 2005—2030, by State



Source: Centers for Disease Control and Prevention

"Estimates are that, with the aging of the Baby Boomers, 67 million adults will have arthritis by 2030."

—Arthritis Foundation

Economic Impact of Arthritis

Arthritis is the number one cause of disability in the United States. According to the CDC, over fifty million people in the United States have some form of arthritis as self-reported in a NIH survey conducted between 2007-09;[1] by 2030, it is estimated that one-fourth of the population will have some form of arthritis.[2]

CDC reports that the total U.S. costs attributable to arthritis and other rheumatic conditions 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 cost 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 $8.7 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 15% between 1997 and 2005.[1]

As the population ages, the prevalence and cost increase. In 2007-09, over 50% of the population over 65 years old has reported an arthritic condition.[1]

Healthy People 2020

Objective AOCBC-2: Reduce the proportion of adults with doctor-diagnosed arthritis who experience a limitation in activity due to arthritis or joint symptoms.

Adults with Activity Limited by Arthritis or Joint Symptoms

Area	Percent
National Baseline 2008	39.4
Target for 2020	35.5
Houston-Baytown-Sugar Land MSA 2009	47.7
State of Texas 2009	47.2
United States 2009	45.9

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 address chronic disease concerns including the appropriate use of medications, communicating effectively with health professionals, and evaluating new treatments.

To help prevent arthritis:

- ***Be physically active***
- ***Maintain a healthy weight***
- ***Protect your joints from injury***
- ***See your doctor for management strategies***
- ***Learn Arthritis Management Strategies***

—CDC

For More Information

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

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

National Institute of Arthritis: *www.niams.nih.gov*

Arthritis Foundation: *www.arthritis.org*

1. CDC. Arthritis data and statistics. Available at http://www.cdc.gov/arthritis/data_statistics.htm. Accessed January 2, 2012.
2. Arthritis Foundation. Raising our voices to fuel arthritis research. Available at http://www.arthritis.org/research-update-raising-voices.php. Accessed January 2, 2012.

Asthma

Overview

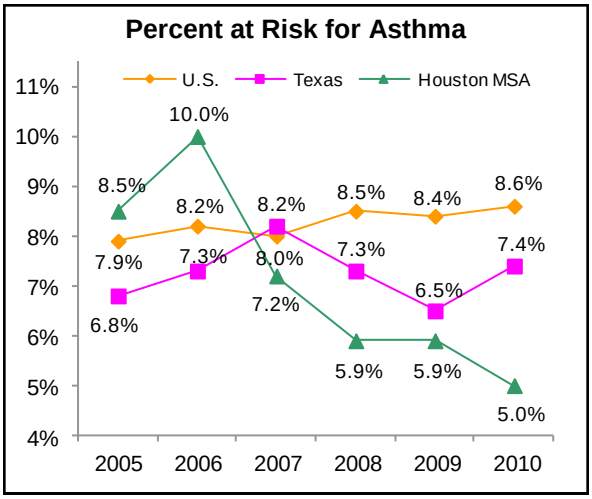
Asthma is a chronic (long-term) lung disease that affects both children and adults. When a person has asthma, the airways, or inner tubes, that carry air in and out of the body are inflamed and swollen. This makes the airways very sensitive to any irritants or allergens, such as secondhand smoke, dust, 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 96,000 children and 186,000 adults in Harris County have been diagnosed with asthma.[1]

Trends: Houston/Harris County 2005-2010



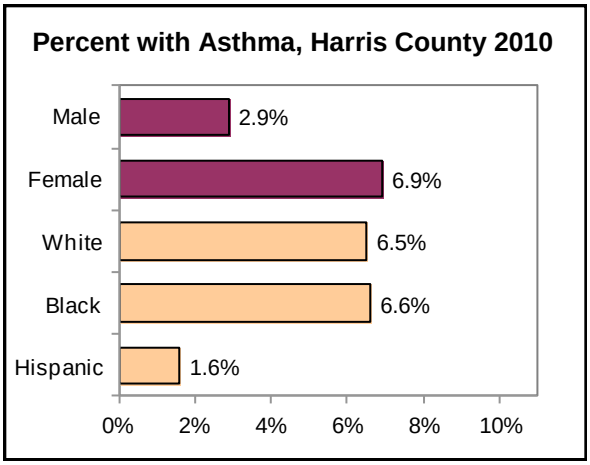
The TDSHS BRFSS telephone survey includes questions about the prevalence and severity of asthma. Participants are asked if they have ever been diagnosed with asthma, and if yes, they are asked if they still have asthma.

The percentage of local adults who report current asthma has decreased overall during the 2005 through 2010 time period. In addition, the local percent has shifted below the U.S. and Texas percents at risk, which have remained relatively stable during this time.

In Harris County, the percent who report current asthma has dropped from 8.2% in 2005 to 5.1% in 2010.

Population Differences

According to the 2010 BRFSS, in the Houston–Baytown-Sugar Land MSA, women were more likely than men to report current asthma (6.9% versus 2.9%). Blacks and whites (6.6% and 6.5%) were more likely to report current asthma than Hispanics (1.6%). In the Houston MSA, persons in the age group 45-64 years (6.6%) and 65+ years (5.7%) were more likely to report asthma compared to persons 18-29 years (3.4%) and 30-44 years (4.0%). With respect to education, persons with more education were more likely to report current asthma compared to persons without a high school diploma.



1. American Lung Association. State of the air, 2011. New York, NY, 2011. Available at http://www.stateoftheair.org/2011/states/texas/harris-48201.html. Accessed October 28, 2011.

Geographic Distribution

Prevalence of Adult Asthma, United States by State, 2009

Source: CDC, 2011 National Asthma Profile

People with asthma can prevent asthma attacks if they are taught to use inhaled corticosteroids and other prescribed daily long-term control medicines correctly and to avoid asthma triggers. Triggers can include tobacco smoke, mold, outdoor air pollution, and colds and flu.

Economic Impact of Asthma

Over 25 million Americans suffer from asthma. In 2007, the annual national cost of asthma was estimated to be nearly $56 billion ($50 billion direct and $6 billion of indirect costs).[2] Each day in the U.S., 40,000 people miss school and work due to asthma, over 1,000 people are hospitalized and 11 people die from asthma. In Texas in 2007, inpatient hospitalization charges associated with asthma totaled over $446 million.[3] In the Texas Health Service Region 6 (Houston Area), the 2009 hospital admittance rate with asthma as the primary diagnosis was 9.4 per 10,000 admissions, less than the state rate of 11.6.[4]

Asthma is one of the most common chronic disorders in childhood of children, currently affecting an estimated 7.1 million children. It is the 3rd leading cause of hospital admissions for children under age 15. Asthma is one of the leading causes of school absenteeism—in 2008, a total of 14.4 million school days were missed by children who had an asthma attack the previous year.[5]

Healthy People 2020

Objective RD-2: Reduce hospitalization for asthma

Hospitalization Rates per 10,000 People Ages 5-64	
Area	**Rate**
National Baseline 2007	11.1
Target for 2020	8.6
Houston MSA 2007*	8.5
State of Texas 2009	12.0
United States 2009	15.7

*All ages

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.

More than half (59%) of children and one-third (33%) of adults who had an asthma attack missed school or work because of asthma in 2008.
— 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*

TX Department of State Health Services: *www.dshs.state.tx.us/asthma/default.shtm*

American Lung Association: *www.lungusa.org*

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

2. Centers for Disease Control and Prevention. Asthma in the U.S. Available at http://www.cdc.gov/VitalSigns/Asthma/. Accessed November 20, 2011.
3. Asthma and Allergy Foundation of America. Asthma Facts and Figures. Available athttp://www.aafa.org/display.cfm?id=8&sub=42. Accessed November 20, 2011.
4. TDSHS Reports. Asthma Health Fact Sheet 2009. Available at http://www.dshs.state.tx.us/asthma/data.shtm. Accessed November 24, 2011.
5. American Lung Association. Asthma and Children Fact Sheet. Available at http://www.lungusa.org/lung-disease/asthma/resources/facts-and-figures/asthma-children-fact-sheet.html. Accessed November 20, 2011.

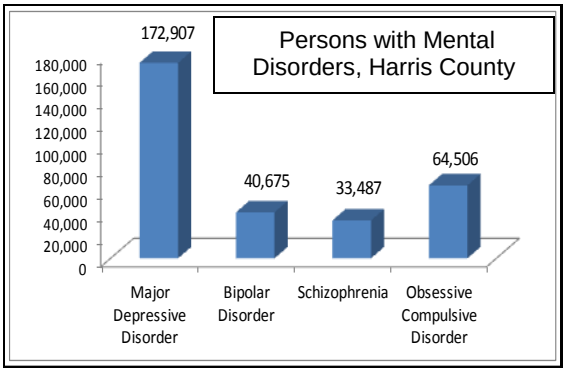
Mental Health Indicators

Overview

Mental health refers to positive emotional and psychological well-being. While many persons experience days with less than ideal well-being, public funding is most concerned with the three severe mental illnesses: schizophrenia, bipolar disorder, and major depression. All three can cause severe impairment in one's ability to cope with daily life and can impact physical health. Depression may also lead to suicide. These three mental disorders, combined with obsessive compulsive disorder, rank among the top ten causes of worldwide disability.[1]

The Mental Health and Mental Retardation Authority of Harris County (MHMRA) offers the following Harris County estimates:[2]

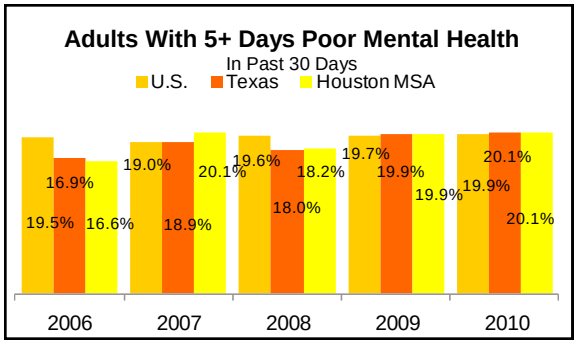
- Over 200,000 adults suffer with a severe mental illness; almost half of these adults could not access treatment from public or private health systems.
- Almost 20,000 Harris County youth need services from the public mental health system each year, but the majority (76%) have not received treatment services.



Source: Estimates provided by MHMRA

The public mental health system in Harris County (MHMRA and Harris County Psychiatric Center) was able to provide services to about 29,000 persons (about 4,600 youth and 24,800 adults) during fiscal year 2010.[2]

Trends: Houston/Harris County 2006-2010



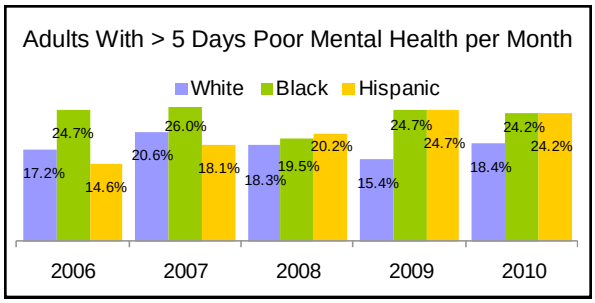
Source: TDSHS BRFSS

The Harris County MHMRA estimates that about 610,000 adult residents and 132,000 youth in Harris County experience a mental health condition or emotional disturbance each year. Of children (aged nine and older) with an emotional disturbance, 33,000 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 2010 BRFSS for the Houston-Baytown-Sugar Land MSA, shows that women more frequently reported five or more days of poor mental health (23%) compared to men (17.3%). Also, those with incomes of $50,000 or more were less likely to report poor mental health (13.9%), compared to 33.8% of those with incomes below $25,000.



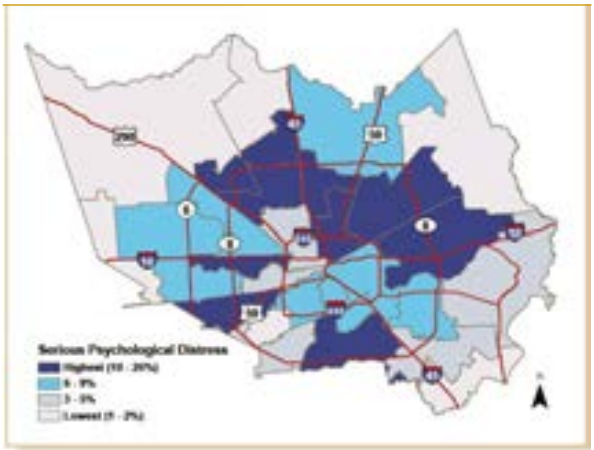
Source: TDSHS BRFSS

1. Murray CJ, Lopez AD. (1996). *The Global Burden of Disease*. Geneva, World Health Organization: Harvard School of Public Health, World Bank; 1996.
2. Data provided by MHMRA of Harris County.

Geographic Distribution

The map below shows areas where serious psychological distress (SPD) is most prevalent in Houston/Harris County. SPD was determined by questions asked as part of the Health of Houston Survey.

Percent of Adults with Serious Psychological Distress by Quartiles, 2010



Source: Health of Houston Survey. *HHS 2010 A First Look*. Houston, TX: Institute for Health Policy, UT School of Public Health, 2011.

Economic Impact of Mental Health

The costs of serious mental illness in the U.S have been estimated at $317 billion annually. This estimate excludes costs associated with mental illness such as incarceration, homelessness and early mortality. These associated costs are estimated as equivalent to more than $1,000/year for every man, woman, and child in the United States.[3] Loss of earnings associated with major mental disorders in the U.S. is estimated at $193 billion each year.[4]

Community-based services offer the most cost-effective care within the public mental health system. In Texas, the average per day cost of community-based services is $12 for adults and $13 for children, as compared to $401 for a state hospital bed, $137 for a jail bed for an inmate with mental illness, and $1265 for an emergency room visit.[5]

Healthy People 2020

Objective MHMD-1: Reduce the suicide rate.

Rate of Suicide per 100,000	
Area	**Rate**
National Baseline 2007	11.3
Target for 2020	10.2
Harris County 2008	10.7
State of Texas 2008	11.0
United States 2008	11.3

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*

Houston Mental Health Association: *www.mhahouston.org*

National Institute of Mental Health: *www.nimh.nih.gov*

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*

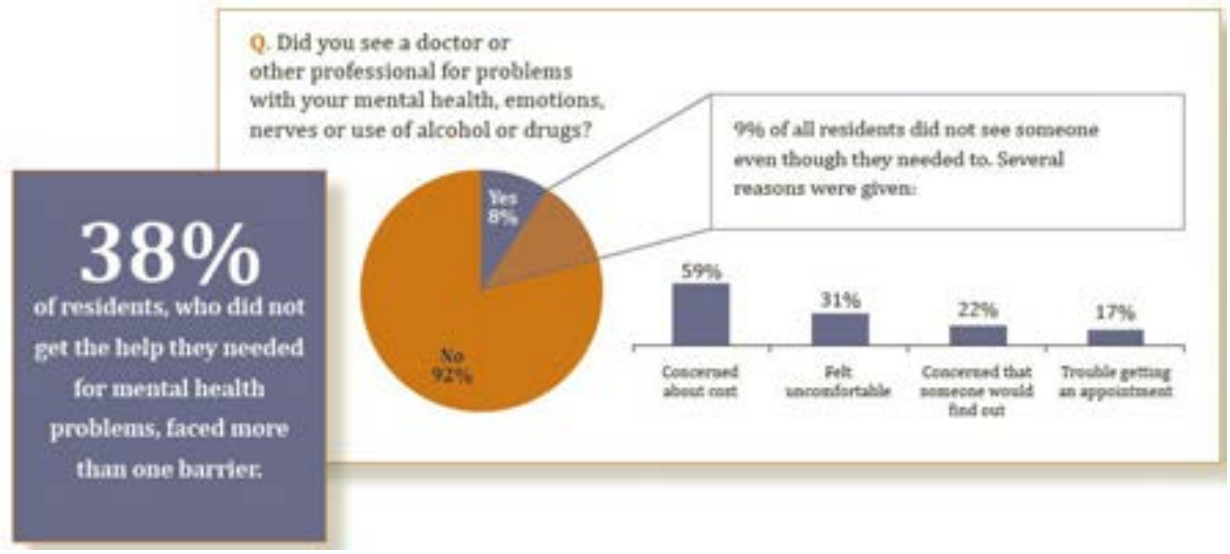
Suicide Prevention Resource Center: *www.sprc.org/stateinformation/statepages/showstate.asp?stateID=43*

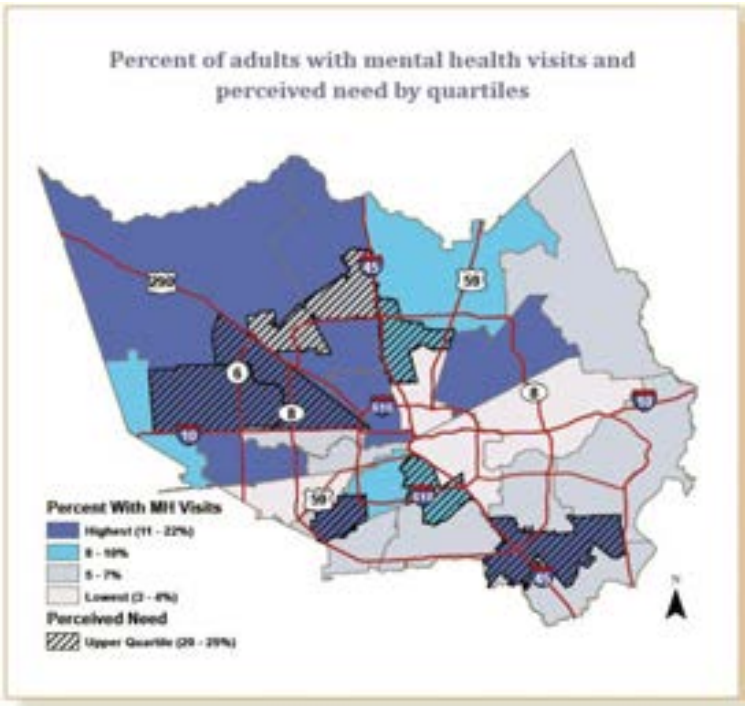
3. Insel TR. Assessing the economic costs of serious mental Illness. *Am J Psychiatry.* 2008;165:663-665. Available at http://ajp.psychiatryonline.org/article.aspx?articleid=99862#T21T1. Accessed January 2, 2012.
4. Kessler RC, Heeringa S, Lakoma MD, Petukhova M, Rupp AE, Schoenbaum M, Wang PS, Zaslavsky AM. The individual-level and societal-level effects of mental disorders on earnings in the United States: Results from the National Comorbidity Survey Replication. *Am J of Psychiatry*. 2008;165:703-711. Available at http://ajp.psychiatryonline.org/article.aspx?. Volume=165&page=703&journalID=13. Accessed January 2, 2012.
5. Mental Health America of Texas. Saving minds, saving money. MHA Texas Website. Available at http://newsite.mhatexas.org/page/legislature-2011. Accessed January 2, 2012.

Mental Health Indicators, cont.

Barriers to Receiving Mental Health Services

In the Health of Houston Survey 2010, led by Dr. Stephen Linder, 8% of adult residents of Houston/Harris County reported that they had seen a mental health professional in the last year. An additional 9% thought they needed professional mental health assistance, but were unable to seek care. Of those who were unable to access mental health care, 60% said that cost was the principal barrier. The chart below shows the barriers to seeking mental health care.[1]





Mental Health Services: Highest Rates of Use and Need

The map to the left shows the percentages of people who obtained mental health services at least once in the 12 months prior to the survey. The darkest blue shows the higher percentages of those who sought and received care.

The hatched areas show the highest proportions of persons who reported that they needed mental health care.

Spring Branch-Carverdale, Edgebrook-Ellington and Addicks-Bear Creek had the highest percentages of people who both needed services and obtained care.[1]

1. Health of Houston Survey. *HHS 2010 A First Look.* Houston, TX: Institute for Health Policy, The University of Texas School of Public Health, 2011:19.

The Burden of Mental Illness

The impact of mental illness on the overall disability burden in the United States has been estimated at 15%. Mental disorders account for slightly more than the total disease burden associated with all forms of cancer.

Overuse of Emergency Rooms

People with the serious mental illnesses of major depression, bipolar disorder, schizophrenia, and obsessive compulsive disorder tend to overuse intensive, high-cost medical services rather than using preventive care.[2]

One study of individuals with serious mental illness showed that they had higher rates of emergency department use than the general population (37% compared with 20%). In Harris County in 2009, an additional 53,000 individuals (those with serious mental illness) would have visited the county's emergency departments when compared to this reported population base rate. More than a third may have made multiple emergency visits.[3]

Sixty-one percent of adults with severe mental illnesses have some history of smoking, compared to 46% of individuals without any disabilities. [5]

Co-Existing Physical Health Problems

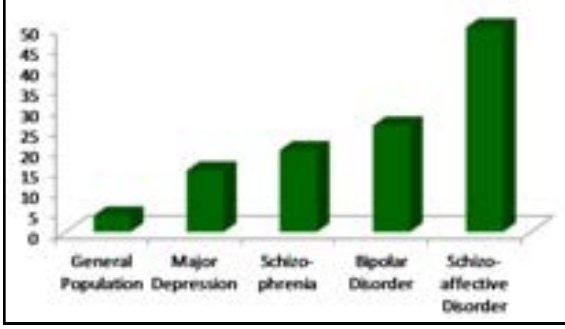
The Bazelon Center for Mental Health Law[4] concluded that 40% to 56% of people with serious mental illnesses have physical health problems. Of these, nearly half have one or more chronic physical illness severe enough to limit daily functioning. Among psychiatrically hospitalized patients, one in five have a major medical illness such as HIV, brain trauma, cerebral palsy or heart disease. Co-morbid substance abuse is also common, with about 40% also diagnosed with substance abuse or dependence.[5]

Further, those with serious mental disorders are more likely to suffer from multiple major medical conditions. They may be twice as likely (26% as compared to 12%) to have more than one disorder.

Among the seriously mentally ill, people with schizophrenia have particularly high rates of medical disorders. A study examining the prevalence of 12 physical health conditions among individuals with schizophrenia found that a majority of them had at least one medical problem. Problems with eyesight, teeth, and high blood pressure were most common. The study found that 75% had diabetes, breathing problems, heart problems and/or bowel problems, and 58% had high blood pressure.[6]

The chart below compares the prevalence of diabetes among the general population with diabetes in those suffering from serious mental illnesses.

Percent Diagnosed with Diabetes With a Co-Existing Mental Disorder



Source: Bazelon Center for Mental Health Law. Getting it together: How to integrate physical and mental health care. 2004.

Traditionally, it has been reported that the lifespan for individuals with schizophrenia is about 10 years shorter than the national average. The National Association of State Mental Health Program Directors has suggested that the estimate falls short. Lifespans may be shortened by as much as 25 years.[2]

The breast cancer rate for women with a long-term mental illness is 9.5 times greater than for the general population. [5]

2. Parks J, Svendsen D, Singer P, Foti ME. Morbidity and mortality in people with serious mental illness. National Assn of State Mental Health Program Directors, Alexandria, VA. 2006. Available at http://www.dsamh.utah.gov/docs/mortality-morbidity_nasmhpd.pdf. Accessed January 23, 2012.
3. Hackman AL, Goldberg RW, Brown CH, Fang LJ, Dickerson, FB, Wohlheiter K., et al. Use of emergency department services for somatic reasons by people with serious mental illness. *Psychiatr Serv,* 2006; *57*(4):563-566. Available at http://www.ncbi.nlm.nih.gov/pubmed/16603755. Accessed January 23, 2012.
4. Alfano E, Carty L. Integration of Primary Care and Behavioral Health. Bazelon Center for Mental Health Law. Washington, D.C. 2005. Available at http://www.bazelon.org/LinkClick.aspx?fileticket=2zTOK6XqPT4%3D&tabid=104. Accessed January 2012.
5. Bazelon Center for Mental Health Law. Getting it together: how to integrate physical and mental health care for people with serious mental disorders. 2004:6-9. Bazelon Center for Mental Health Law website. Available at http://bazelon.org.gravitatehosting.com/LinkClick.aspx?fileticket=5tCrFDlgyGc%3D&tabid=104. Accessed January 23, 2012.
6. Dixon L, Postrado L, Delahanty J, Fischer PJ, Lehman A. The association of medical comorbidity in schizophrenia with poor physical and mental health. *The Journal of Nervous and Mental Disease,* 1999;187:486-502.

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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 2008, imported measles resulted in 140 reported cases—almost a three-fold increase in one year. In addition, antimicrobial resistance is evolving rapidly in a variety of hospital- and community-acquired infections.

Approximately 42,000 adults and 300 children die yearly from vaccine treatable diseases. Infectious diseases such as pneumonia and influenza cause 56,000 deaths a year and are the eighth leading cause of death in the United States.

Infectious diseases, such as the H1N1 virus, also must be considered in a global context. Increases in international travel, migration, importation of foods, inappropriate use of antibiotics on humans and animals, threat of bioterrorism, 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 2020

HIV/AIDS

Overview

AIDS (Acquired Immunodeficiency Syndrome) was first reported in the United States in 1981 and has since become pandemic (developed into a 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.

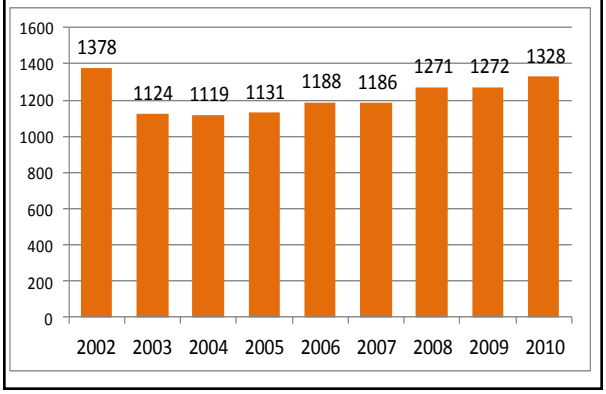
In the beginning of the epidemic, people died within about 10 years after becoming infected with HIV. In 1996, the introduction of HAART (highly active antiretroviral therapy), commonly known as triple cocktail, has significantly slowed the progression of HIV to AIDS and AIDS to death.

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 breastfeeding.

The CDC estimates that more than 1 million persons are currently living with HIV in the United States and one in five does not know their status.

Trends: Houston/Harris County 2002-2010

Newly Diagnosed HIV Cases, Regardless of AIDS Status, in Houston/Harris County



Source: HDHHS Bureau of Epidemiology Quarterly Report, 4rd Quarter 2011. Summary of Houston/Harris County Cases. Available at http://www.houstontx.gov/health/HIV-STD/hivaidspage.html.

While AIDS has been a reportable condition in Texas since the 1980s, HIV infection did not become reportable until 1999. Reported new HIV cases, regardless of AIDS status, in Houston/Harris County have slightly increased during the last five years, ranging from approximately 1,200 to 1,300 new HIV cases each year.

According to TDSHS estimates for 2010, approximately 19,733 persons are living with HIV or AIDS in Harris County. Ninety-two percent of these cases live within the City of Houston and the remaining 8% live in Harris County communities outside the city boundaries. The CDC estimates that 20% of HIV/AIDS infections are undiagnosed; therefore close to 3,950 persons in Harris County may be infected with HIV but do not know it.[1]

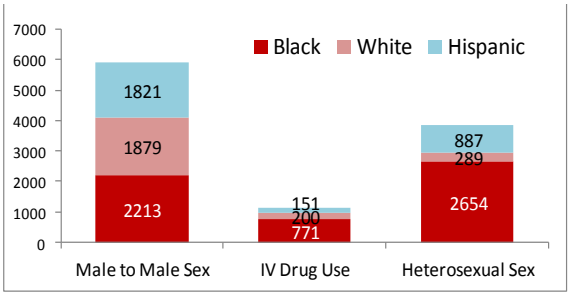
Population Differences

At the end of 2009, 50% of persons living with HIV/AIDS in Houston/Harris County were black, 26% were white, and 22% were Hispanic. Males (74%) outnumbered females (26%). In the black population, however, 37% of those living with HIV/AIDS were female.[2]

Male to male transmission is most common overall, but heterosexual transmission is more frequent among the black population.[2]

1. CDC. HIV Factsheet. Available at: http://www.cdc.gov/hiv/resources/factsheets/us.htm. Accessed October 30, 2011.
2. HDHHS Bureau of Epidemiology case records.

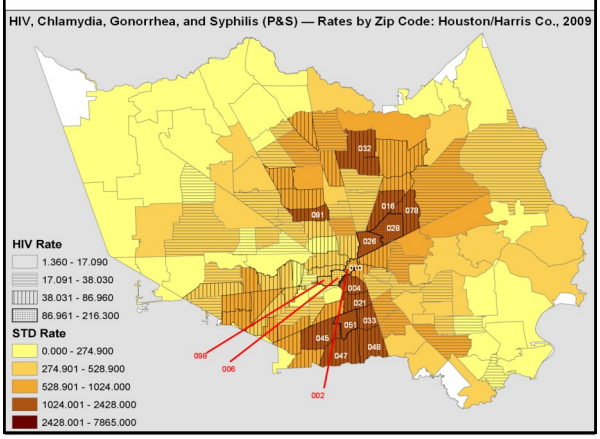
Cumulative New HIV Infection Diagnoses by Mode of Transmission Houston/Harris County 1999-2010



Source: HDHHS Bureau of Epidemiology

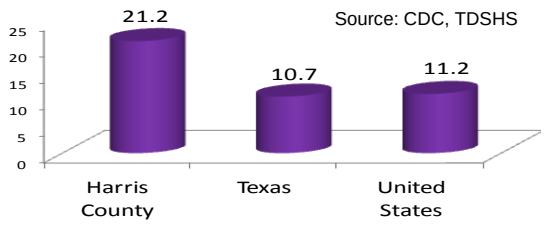
Geographic Distribution

HIV/STD Rates in Houston/Harris County 2009



Source: HDHHS Bureau of HIVSTD and Viral Hepatitis Prevention, HDHHS Bureau of Epidemiology

New AIDS Cases 2009
Rate per 100,000 population



Economic Impact of HIV/AIDS

Nearly 30 years have passed since HIV was discovered, and it continues to exert a heavy economic toll in the United States. Lifetime medical costs for people who become infected with HIV are estimated at $20 billion annually in the US (2010 dollars).[3]

HIV prevention has generated substantial economic benefits. For every HIV infection that is prevented, an estimated $360,000 (2009 dollars) is saved in the cost of providing lifetime HIV treatment.[4]

Texas received $218.5 million in HIV/AIDS Federal Grant Funding in 2009 to combat the HIV epidemic.[5] Medicaid spent $161.9 million on enrollees with HIV in 2007 which translated to $16,511 spending per capita in Texas.[6]

Healthy People 2020

Objective HIV-4: Reduce new AIDS cases among adolescents and adults

Rate of New AIDS Cases per 100,000 population

Area	Rate
National Baseline 2007	14.4
Target for 2020	13.0
Harris County 2010	20.0
State of Texas 2009	10.7
United States 2009	11.2

Public Health Actions

- Develop policies and plans that support individual and community health efforts such as incorporating HIV testing as a routine part of care in traditional medical settings.
- Enforce laws and regulations that protect health, 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*

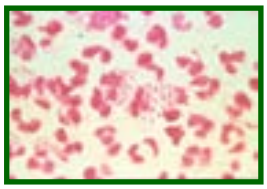
TDSHS: *www.dshs.state.tx.us/hivstd*

HCPHES: *www.hcphes.org/dccp/hiv.htm*

HDHHS: *www.houstontx.gov/health/HIV-STD*

3. Centers for Disease Control and Prevention, HIV/AIDS. Projecting possible future courses of the HIV epidemic in the United States. CDC Website. Available at http://www.cdc.gov/hiv/resources/factsheets/us-epi-future-courses.htm. Accessed January 23, 2012.
4. Farnham PG, et. al. Medical costs averted by HIV prevention efforts in the United States,1991–2006.*JAIDS* 2010;54:565-67. Available at http://journals.lww.com/jaids/Fulltext/2010/08150/22.aspx. Accessed January 23, 2012.
5. Kaiser Family Foundation, State Health Facts. Texas: Total HIV/AIDS U.S. federal funding for HIV/AIDS federal grant funding, FY 2009. KFF Website. Available at http://www.statehealthfacts.org/profileind.jsp?ind=528&cat=11&rgn=45. Accessed January 23, 2012.
6. Kaiser Family Foundation, State Health Facts. Texas: Medicaid enrollment and spending on HIV, FY2007. KFF Website. Available at http://www.statehealthfacts.org/profileind.jsp?rep=107&cat=11&rgn=45. Accessed January 23, 2012.

Sexually Transmitted Diseases



Gram stain of discharge with gonorrhea bacteria
Photo courtesy of CDC

Overview-Sexually Transmitted Diseases

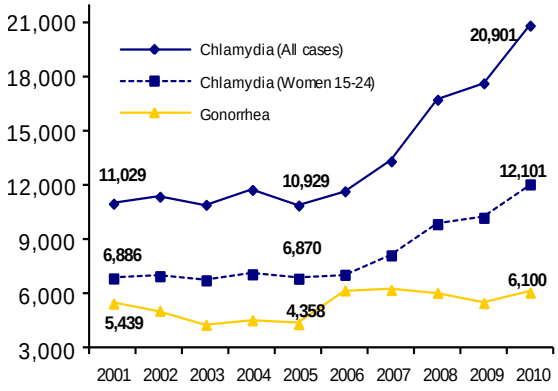
The occurrence of sexually transmitted diseases (STDs) such as Chlamydia, gonorrhea and syphilis is an indicator of unprotected sexual contact, a primary risk factor for HIV infection. The CDC reports that inflammations from STDs can facilitate the transmission of HIV.

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 required to be 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 2000-2010

Reported STD Cases 2001-2010
Houston/Harris County



Source: HDHHS case files

Compared to other U.S. counties in 2010, Harris County ranked 3rd in number of cases of Chlamydia and 5th in cases of gonorrhea.

—CDC STD Surveillance

In 2010, HDHHS reported the majority of Houston/Harris County Chlamydia cases (17,608) were within Houston city limits. The 2010 Chlamydia infection rate in Houston/Harris County for all age groups was 510.3 cases per 100,000 population[1], compared to the Texas rate of 467.3[2] and the U.S. rate of 426.0.[3]

During 2010, Harris County gonorrhea cases totaled 6,100, a rate of 148.9 per 100,000[1], compared to 124.0 in Texas in 2010[2] and 100.8 in the U.S.[3]

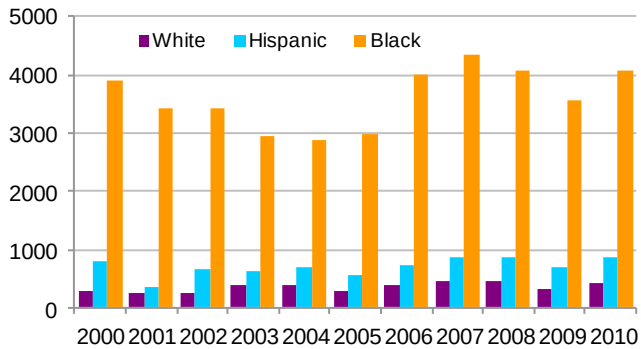
Population Differences — Chlamydia and Gonorrhea

Chlamydia is the most commonly reported infectious disease in the U.S., and gonorrhea is second. The highest rates locally are among sexually active teenagers and young adults. Gonorrhea rates for the black population are much higher than for the other races represented in Houston/Harris County, while the black and Hispanic populations show similar rates of Chlamydia.[1]

From 2000-2010, among the black population, both men and women had the highest rates of gonorrhea infection, followed by Hispanics and whites.[1]

(cont. next page)

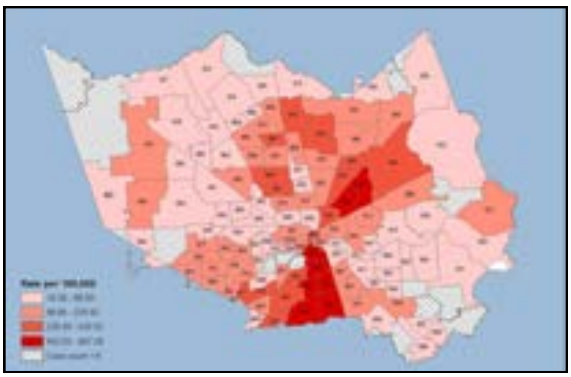
Number of New Gonorrhea Cases by Race/Ethnicity 2000-2010



Source: HDHHS case files

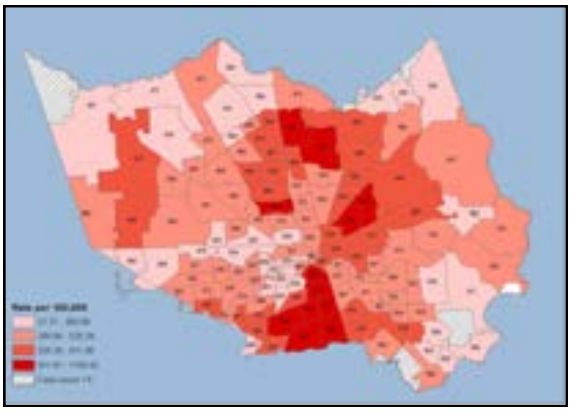
Geographic Distribution

Gonorrhea in Houston/Harris County, 2009



Source: HDHHS Bureau of HIV/STD and Viral Hepatitis Prevention

Chlamydia in Houston/Harris County, 2009



Source: HDHHS Bureau of HIV/STD and Viral Hepatitis Prevention

Population Differences, cont.

For example, in 2010 the infection rate of gonorrhea among the black population was 556.6 per 100,000 population, compared to 47.7 and 34.5 for Hispanic and whites, respectively.[1]

Chlamydia is detected more often in women than in men, while gonorrhea rates are similar between the two sexes. During 2010, in Houston/Harris County,12,201 women were diagnosed with Chlamydia compared to 2,568 men. The 2010 rate of Chlamydia among women aged 15-19 was 4,454.11 per 100,000 population compared to the rate for men of the same age of 710.92 per 100,000.[1]

Healthy People 2020

Objective STD-6: Reduce gonorrhea rates among females aged 15 to 44 years

Rate of New Gonorrhea Cases per 100,000 Females Aged 15 to 44	
Area	**Rate**
National Baseline 2008	284.0
Target for 2020	257.0
Harris County 2010	341.6
State of Texas 2010	303.2
United States 2010	258.7

Economic Impact of Chlamydia and Gonorrhea

The estimated direct medical cost of STD treatment in the United States is $15.3 billion annually (In 2007 dollars). However, this cost does not include indirect costs such as lost wages and productivity or costs associated with STD's transmitted to infants.[4]

Chlamydia and Gonorrhea, the two most commonly reported infectious diseases in the U.S.,[5] resulted in estimated annual medical costs of $374.6 million and $56.0 million respectively in 1997.[6]

Genital Human Papillomavirus (HPV) and Other STDs

Genital HPV is an STD caused by more than 40 strains of HPV virus. Most people who contract HPV don't have symptoms and clear the infection on their own. However, some strains can lead to cancer of the cervix or other parts of the genital-rectal area. The HPV vaccine is recommended for girls and boys to prevent HPV.[7]

Genital herpes is common in the U.S., affecting roughly one out of five adolescents and adults. Most have no symptoms, but occasionally complications occur. There is no cure, but treatment is available for symptoms.[8]

The STDs bacterial vaginosis and trichomoniasis can be cured with antibiotics.[5]

1. Houston Department of Health and Human Services. Epidemiology Reports, 2010.
2. TDSHS HIV/STD Program Reports. Available at http://www.dshs.state.tx.us/hivstd/reports/default.shtm. Accessed February 18, 2012.
3. CDC STD Data & Statistics. Available at http://www.cdc.gov/std/stats/default.htm. Accessed February 18, 2012.
4. CDC. 2007 STD Surveillance. CDC Website. Available at http://www.cdc.gov/std/stats07/trends.htm. Accessed January 2012.
5. CDC, CDC Features. STDs are a major public health issue. CDC Website. Available at http://www.cdc.gov/features/stdawareness/. Accessed January 2012.
6. Kaiser Family Foundation, Sexually Transmitted Disease in America. Estimates of the direct medical costs of STDs in the United States. KFF Website. Available at http://www.kff.org/womenshealth/1447-std_rep3.cfm#medical. Accessed January 2012.
7. CDC Website. ACIP Recommendations for HPV. Available at http://www.cdc.gov/vaccines/pub/ACIP-list.htm#hpv.
8. CDC Website. STD Fact Sheets. Available at http://www.cdc.gov. Accessed October 2011.

Sexually Transmitted Diseases, cont.

Overview-Syphilis

Syphilis is caused by the bacteria, *Treponema palidum*, that moves throughout the body and reproduces daily. 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.

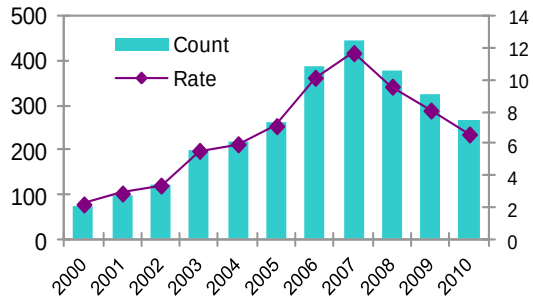
Syphilis-causing bacteria
Treponema palidum
Photo courtesy of CDC

Trends: Syphilis in Houston/Harris County 2000-2010

The national rate of syphilis infections decreased during the 1990s. However, according to CDC, it has increased in recent years. Locally, from 2000-2007 Houston/Harris County had an upward trend of primary and secondary syphilis cases. In 2008, this trend reversed, with a decrease in cases that has been sustained through 2010. In 2010, 1,415 total syphilis cases and 263 primary and secondary syphilis cases were reported to HDHHS.[1]

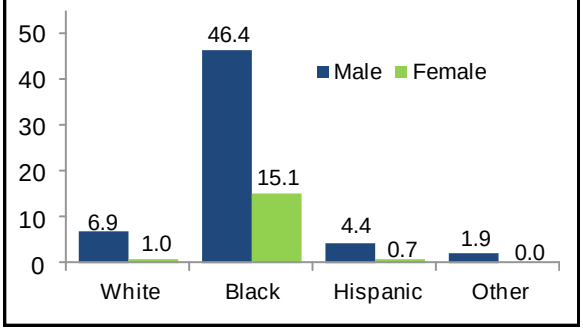
The primary and secondary syphilis infection rate for 2010 in Houston/Harris County was 6.4 cases per 100,000 population,[1] compared to the state rate of 4.9[2] and the U.S. rate of 4.5 per 100,000 persons.[3]

Newly Reported Primary and Secondary Syphilis Cases in Houston/Harris County 2000-2010



Source: TDSHS

Primary & Secondary Syphilis 2010 Sex and Race/Ethnicity, in Houston
Rate per 100,000 population



Source: HDHHS Case files

Population Differences—Syphilis

The largest proportion of primary and secondary syphilis cases occurs among males. In 2010, the rate of new syphilis cases was higher for males compared to females across all racial/ethnic groups.

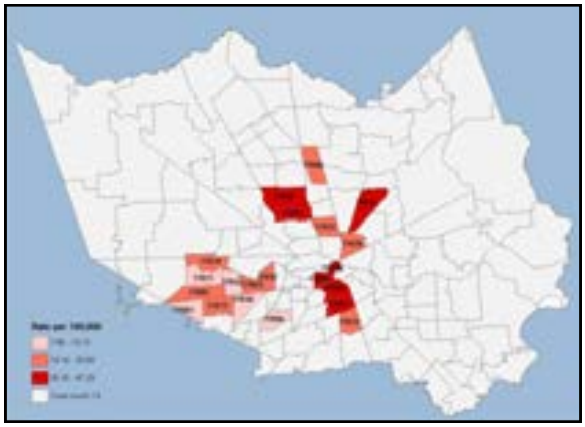
The black population, by far, has more diagnosed cases of syphilis than either the Hispanics or white populations. This trend has held throughout the 1990s and into this decade.

Nationally, primary and secondary syphilis rates have increased every year since 2001. Overall increases in rates were predominately among men who have sex with men (MSM) and black adolescents. A similar trend has been observed in Houston/Harris County.

1. Houston Department of Health and Human Services. Epidemiology Reports 2010.
2. TDSHS HIV/STD Program Reports. Available at http://www.dshs.state.tx.us/hivstd/reports/default.shtm. Accessed February 18, 2012.
3. CDC STD Data & Statistics. Available at http://www.cdc.gov/std/stats/default.htm. Accessed February 18, 2012.

Geographic Distribution

Primary and Secondary Syphilis
Houston/Harris County, 2009
ZIP Code Rates per 100,000 population



Source: HDHHS Bureau of HIV/STD and Viral Hepatitis Prevention. Rates are per 100,000 population.

The map above shows the 21 ZIP codes in Harris County with primary and secondary syphilis rates higher than 7.9 per 100,000 population in those ZIP codes with more than five cases. Eight ZIP codes, marked in dark red, had rates of primary and secondary syphilis above 25.1 per 100,000 population in 2009.

Harris County's rank in cases of P&S syphilis:
2010: 8th among all U.S. counties
2009: 5th among all U.S. counties
—CDC STD Surveillance

Economic Impact of Syphilis

The lifetime medical direct and indirect costs per case of syphilis have been estimated at $572 and $112 respectively (in year 2006 dollars). These estimates do not include costs from congenital syphilis, which is spread by an infected mother to her infant through the placenta, nor do the estimates include HIV infections, which are more likely when the exposed individual already has syphilis.[4]

Screening and early detection are key to averting costs associated with disease progression and long-term complications. Treatment for early stage syphilis was estimated to be $41.26 (in year 2001 dollars) compared to $2,061.70 for late syphilis.[5]

Healthy People 2020

Objective STD-7: Reduce sustained domestic transmission of primary and secondary syphilis

Primary/Secondary Syphilis
Rate per 100,000

Area	Rate
National Baseline 2009	4.6
Target for 2020	1.4
Harris County 2010	6.4
State of Texas 2010	4.9
United States 2010	4.5

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 to decrease STDs.
- Support initiatives such as the National Plan to Eliminate Syphilis to enhance public health services, target interventions, and improve effectiveness 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/dccp/hiv.htm*

4. Chesson H, Collins D, Koski K. Formulas for estimating the costs averted by sexually transmitted infection (STI) prevention programs in the United States. *Cost Effectiveness and Resource Allocation*. 2008;6(1):10. Available at http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2426671/?tool=pubmed. Accessed January 24, 2012.
5. Blandford JM, Gift TL. The cost-effectiveness of single-dose azithromycin for treatment of incubating syphilis. *Sex Transmit Dis* 2003;30(6):502-8. Available at http://journals.lww.com/stdjournal/Fulltext/2003/06000/Syphilis_Outbreaks_Among_Men_Who_Have_Sex_With.6.aspx#. Accessed January 24, 2012.

Tuberculosis

Photo courtesy of National Institutes of Health

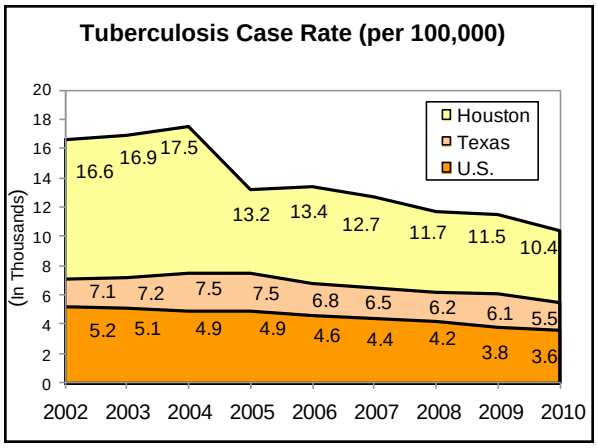
Overview

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 lies 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. Patients require treatment with multiple drugs for six months or longer, 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, cancer, and those recently infected with TB. Progression to active disease can usually be prevented by taking a single drug for four to nine months.

TB was once the leading cause of death in the United States, but use of antibiotics greatly reduced the rates of infection and mortality. World-wide, TB rates have been falling since 2006.[1] There has been a drastic increase, however, in strains of TB resistant to multiple forms of antibiotics (XDR TB), 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 course.

Trends: Houston/Harris County 2002-2010



According to HDHHS, 235 new cases of TB were diagnosed in Houston in 2010, representing 16.9% of the 1,385 new cases reported in the state of Texas. An additional 105 cases of TB were reported in Harris County outside the city limits of Houston in 2010. While the case rate in Houston has decreased from 2008 to 2010 (11.7 to 10.4 per 100,000 respectively), the rate is still more than twice the national rate of disease.

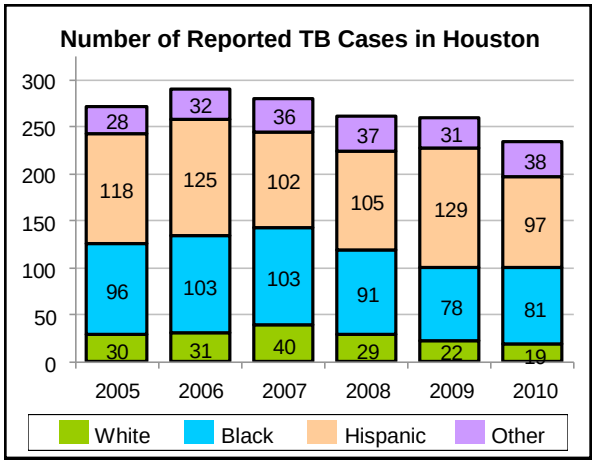
The Houston Metropolitan Statistical Area, in which Houston and Harris County reside, was ranked 9th in the Nation by case rate (8.0) in 2008, according to HDHHS reports.

Population Differences

The number of TB disease cases reported among blacks and Hispanics is significantly higher than persons identifying as white or other. In 2010 blacks represented 34% cases in Houston, while Hispanics represented 41%.

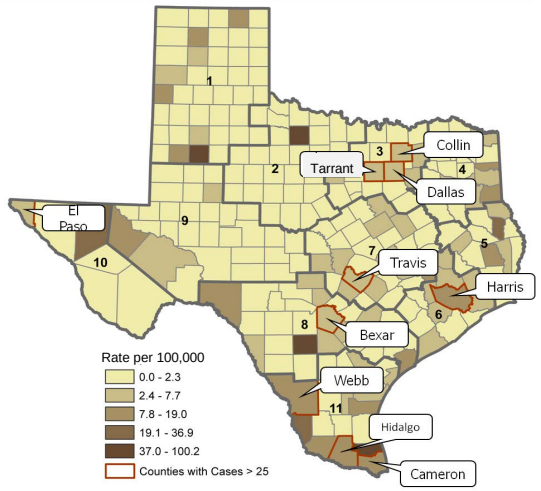
Differences are also noted by place of birth. Fifty-seven percent of new TB cases in Houston during 2010 were among individuals born outside of the U.S. Other groups known to be at a higher risk are children, homeless persons, and prison inmates.

(Chart to the right) Source: TDSHS and HDHHS case files



Geographic Distribution

Tuberculosis Incidence Rates by County, 2010



Source: TDSHS, TB Statistics

Risk factors associated with TB cases reported in Texas during 2010 include: being foreign-born, abuse of alcohol, having diabetes, being a prison/jail inmate, having HIV/AIDS, homelessness, or being a healthcare worker.
—TDSHS

Economic Impact of Tuberculosis

Worldwide, approximately $4.4 billion is expected to be spent in 2012 in the 97 countries that contain 92% of the world's TB cases. These costs include diagnosis and treatment, but not lost productivity.[1]

In the United States, tuberculosis is typically treated on an outpatient basis. However, hospitalization was needed 58,500 times in 2006 with costs that year of $752 million.[3]

In 2009, CDC provided $12,205,980 to fund the Texas state and the Houston health departments for TB prevention and control activities, including surveillance, case management, and directly observed therapy to ensure that those with TB are compliant with their medications and treatment protocols. These funds also supported identification and evaluation of persons exposed to TB, lab services, regional training, and clinical and epidemiological research.[4]

Healthy People 2020

Objective IID-29: Reduce tuberculosis (TB)

Tuberculosis Rates
New Cases per 100,000

Area	Rate
National Baseline 2005	4.9
Target for 2020	1.0
City of Houston 2010	10.4
State of Texas 2010	5.5
United States 2010	3.6

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*

TDSHS: *www.dshs.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/dccp/tb.htm*

1. World Health Organization. Global tuberculosis control 2011. Available at www.who.int/tb/publications/global_report/en/. Accessed January 2, 2012.
2. Advocacy to Control TB Internationally. The global plan to stop TB. Available at www.action.org/site/get_educated/the_global_plan-to_stop_tb. Accessed January 2, 2012.
3. Health Care Cost and Utilization Project # 60. Available at www.hcup-us.ahrq.gov/reports/statbriefs/sb60.pdf. Accessed January 2, 2012.
4. CDC, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. Texas—2010 profile. Available at http://www.cdc.gov/nchhstp/stateprofiles/pdf/Texas_profile.pdf. Accessed February 28, 2012.

Vaccine Preventable Diseases

Overview

Immunizations protect individuals and the people around them. In Houston/Harris County, cases of once common diseases such as measles, mumps and tetanus are at or near zero due to safe and effective vaccines. The vaccine for chicken pox (varicella), introduced in 1995, is still relatively new; therefore occurrences of chicken pox are decreasing, but still persist.

However, since the 2003 low of 41 cases in Houston/Harris County, reported cases of pertussis have increased. Pertussis, or whooping cough, is an infectious bacterial disease that can lead to pneumonia, seizures and death. In 2005, 36% of pertussis cases in Harris County were reported in infants under the age of one year.

Most vaccines are given to children, but seniors also benefit from recommended vaccinations, such as those to prevent pneumonia, influenza and shingles. Influenza/pneumonia is

the 9th most common cause of death in Houston/Harris County.

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

Trends: Houston/Harris County 2001-2010

Most vaccine preventable diseases are only rarely seen in Houston/Harris County. However, two diseases that were once common still infect hundreds of local residents, chicken pox (varicella) and whooping cough (pertussis). Many pertussis cases are never diagnosed, contributing to the spread of the disease.

Among contributors to the persistence of diseases like pertussis are those children that do not receive all recommended vaccinations. Among cases reported to Harris County Public Health and Environmental Services in 2005-2010, only 41.8% of infected infants were appropriately vaccinated for their age.[2]

Number of Reported Vaccine-Preventable Disease Cases and (Rate per 100,000) Houston/Harris County, 2004-2010

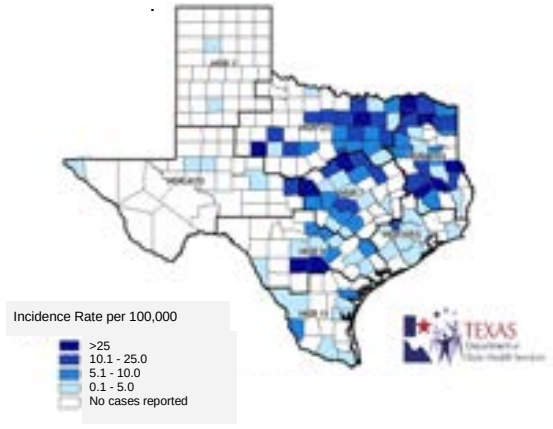
	2004	2005	2006	2007	2008	2009	2010
Chicken Pox	1450 (39.4)	975 (26.1)	1568 (48.1)	1217 (31.6)	792 (19.9)	567 (13.9)	324 (8.1)
Measles	0	<5	<5	0	<5	<5	0
Rubella	0	0	0	0	0	0	0
Mumps	<5	<5	6 (0.2)	<5	<5	<5	<5
Pertussis	89 (2.4)	127 (3.4)	120 (3.1)	96 (2.5)	159 (4.0)	267 (6.6)	117 (2.9)
Tetanus	0	0	0	0	0	0	0

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

1. CDC. Varicella disease questions and answers. June 13, 2008. Available at http://www.cdc.gov/vaccines/vpd-vac/varicella/dis-faqs-gen.htm. Accessed April 6, 2009.
2. Zangeneh A. Spatial analysis of pertussis cases in Harris County from 2005-2010. *Texas Med. Ctr. Dissertations (via ProQuest).* Available at http://digitalcommons.library.tmc.edu/dissertations/AAI1497696/. Accessed December 21, 2011.

Geographic Distribution

Pertussis Incidence, 2008
(Cases/100,000 population)

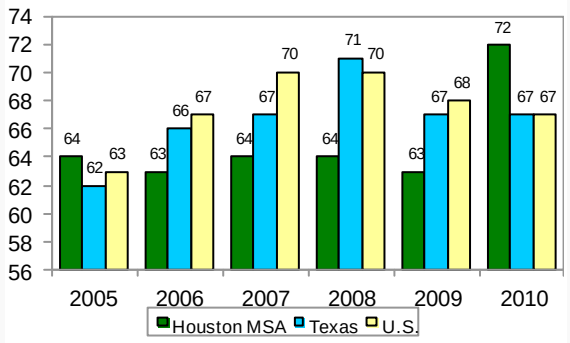


Source: TDSHS, Infectious Disease Control

Population Differences

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

Percent Who Had a Flu Shot in the Last Year, Age 65+



Source: TDSHS, BRFSS

Economic Impact of Vaccine Preventable Diseases

It is less costly for society to prevent vaccine preventable diseases than to treat them. Every dollar spent on the vaccination program in the U.S. saves more than $5 in direct costs and approximately $11 in additional costs to society (in 2005 dollars).[3]

Estimated savings from the routine childhood immunization (seven vaccines) of the 3,805,295 babies born in 2001 was estimated at a net savings of $9.9 billion (direct costs) and $43.3 billion (societal costs).[3]

Healthy People 2020 Objective

Objective IID-1.0: Reduce, eliminate, or maintain elimination of varicella (chicken pox) in persons aged 17 or under

Cases of Varicella (Chicken Pox) in Children aged 17 and under

Area	Number of Cases
National Baseline 2008	582,535
Target for 2020	100,000
Houston/Harris County 2010 (includes all ages)	324
State of Texas 2010	2,760
United States 2008	582,535

The shingles vaccine, recommended for those 60 and older, is to prevent or decrease shingles symptoms caused by the chicken pox virus many older people contracted in childhood.

Public Health Actions

- Identify and improve the community health status 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 Vaccines and Immunizations: *www.cdc.gov/vaccines*

Immunization Action Coalition: *www.vaccineinformation.org*

National Foundation for Infectious Diseases: *www.nfid.org/factsheets*

World Health Organization: *www.who.int/immunization*

3. Zhou F, et al. Economic evaluation of the 7-Vaccine routine childhood immunization schedule in the United States ,2001. *Arch Pediatr Adolesc Med*.2005;159(12):1136-44. Available at http://archpedi.ama-assn.org/cgi/content/full/159/12/1136. Accessed January 25, 2012.

Meningitis

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. According to TDSHS records, 198 cases of viral/aseptic meningitis were reported in Houston/Harris County in 2010.

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.

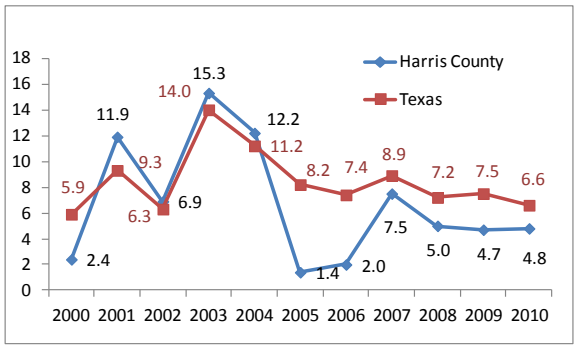
Transmission of many of the viruses and bacteria that cause meningitis occurs through direct contact with an infected person's fluids, such as those released during coughing or sneezing. This usually happens when a healthy person comes into contact with an infected person or touches a contaminated surface and then touches their eyes, nose or mouth. CDC reports that 90% of viral meningitis cases are caused by enteroviruses, thought to be frequently spread among children who are not yet toilet trained.

In 2007, TDSHS documented the following Harris County cases:

- Viral/aseptic meningitis: 296 cases
- Bacterial—confirmed: 74 cases
- Bacterial—probable: 18 cases
- Other—confirmed: 32 (such as fungal)
- Other—probable: 1

Trends: Harris County/Texas 2000-2010

Reported Cases of Aseptic Meningitis
Rate per 100,000 Population



Source: TDSHS 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.

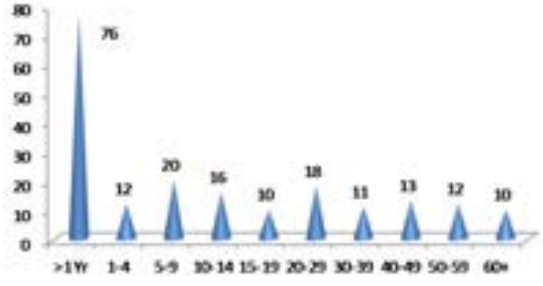
Aseptic meningitis is one of the presentations of West Nile virus (WNV) infection. Houston actively tracked WNV (2002-2005) following a 2002 WNV outbreak. The high rate of aseptic meningitis cases in these years could be attributed to this WNV outbreak. The decrease in reported cases of aseptic meningitis in 2006 and 2007 may reflect a decrease in the active surveillance of West Nile virus in Houston area hospitals and clinics.

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, the risk of becoming infected with meningitis varies; some years the risk is high among elementary aged children, while other years it is not.

Aseptic meningitis rates are similar between most racial/ethnic groups. In 2010, rates per 100,000 population were white 4.5, black 4.7, and Hispanic 4.7.

Ages of Reported Cases of Aseptic Meningitis
Harris County, 2010

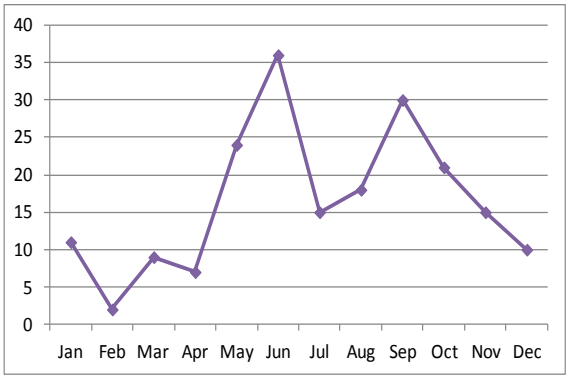


Source: TDSHS case files

Seasonal Distribution

Cases of aseptic meningitis in Houston peak in warmer months. In most years, this peak occurs during the months of May and June.

Reported Cases of Aseptic Meningitis by Month Harris County, 2010



Source: TDSHS 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, there are vaccines against Hib, against some serogroups of *N. meningitidis* and many types of *Streptococcus pneumoniae*. The vaccines are safe and highly effective.[3] The costs of vaccinations vary, and can range up to $150 for the required college-entrance vaccination, although many universities subsidize the cost for their students.

Healthy People 2020

Objective IID-7.2: Three doses of Haemophilus influenza type b (Hib) vaccine by 19 to 35 months

Percent of children aged 19 to 35 months received 3 or more doses of Hib*

Area	Percent
National Baseline 2009	57.0
Target for 2020	90.0
Houston 2010	87.8
State of Texas 2010	90.6
United States 2010	90.4

*Hib vaccination prevents meningitis, pneumonia, and other serious infections caused by the bacteria *Haemophilus influenzae* type b.

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.

In May 2011, the Texas State Legislature passed SB 1107, effective immediately, requiring **all entering students under the age of 30** at public and private institutions of higher education to provide evidence of vaccination against bacterial meningitis or a signed affidavit declining the vaccination.

For More Information

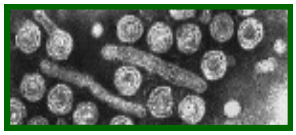
CDC Aseptic Meningitis: *www.cdc.gov/meningitis/viral/viral-faqs.htm*

CDC Bacterial Meningitis: *www.cdc.gov/meningitis/bacterial/index.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. Available at http://www.ncbi.nlm.nih.gov/pubmed/11252544. Accessed January 2, 2012.
2. O'Brien, JA et al. Managing meningococcal disease in the United States: Hospital characteristics and costs by age. *Value Health*, 2006;9 (4):236-43. Available at www.ncbi.nlm.nih.gov/m/pubmed/16903993. Accessed January 2, 2012.
3. Centers for Disease Control and Prevention. Meningococcal disease. Available at http://www.cdc.gov/meningitis/about/faq.html. Accessed February 28, 2012.

Hepatitis B and C



Hepatitis B Virus
Photo courtesy: www.virology.net

Overview

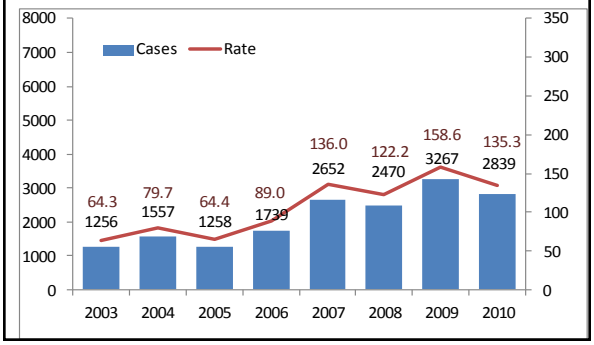
Hepatitis means inflammation of the liver and can be caused by drugs, toxic substances, and several infectious agents including different viruses labeled hepatitis A, B, C, D or E. Hepatitis B, C, and D viruses are transmitted by blood and blood products. Hepatitis B is also commonly spread through sexual contact, and can sometimes be contracted by infants born to infected mothers. Types A and E are transmitted through the fecal-oral route. All of the viruses can cause fatigue, vomiting, diarrhea, abdominal pain, jaundice, dark urine and pale stools. Hepatitis B and C may lead to liver cancer, cirrhosis, and even death. Prevention and treatment for each virus type varies. Most cases in the Houston area are hepatitis B and C.

According to CDC, viral hepatitis is a silent epidemic with more than 4 million Americans living with chronic hepatitis B or C, including an estimated 75% who are not aware that they are infected. Early stage symptoms are often mild, but chronic hepatitis can cause severe impairment. Viral hepatitis is the leading cause of liver cancer and the most common reason for liver transplantation. Approximately 15,000 Americans die each year from liver cancer or chronic liver disease associated with viral hepatitis.

The best prevention against contracting hepatitis B is through vaccination. Vaccination is recommended for those at greater risk, such as persons who are exposed to blood on the job.

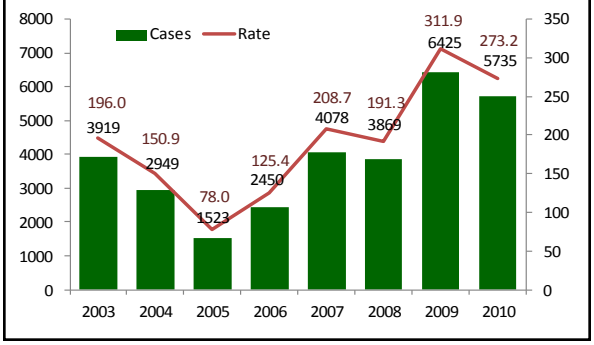
Trends: Houston/Harris County 2003-2010

Reported Cases of Hepatitis **B** in Houston*



*Rate is cases per 100,000 population. Cases include both acute and chronic cases reported to HDHHS.

Reported Cases of Hepatitis **C** in Houston*



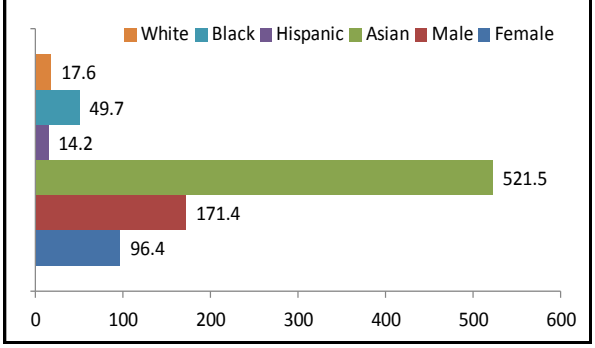
* 2003-2005 decline appears to be an artifact of reporting by health care providers; upward trend since 2005 may be due to increased surveillance and testing.

Population Differences

In the city of Houston in 2010, racial differences in newly reported cases of combined chronic and acute hepatitis B are illustrated in the chart at right. Among the 2,839 cases reported in 2010, Asians had the highest reported rate in 2010 (521.5 per 100,000), followed by blacks (49.7 per 100,000).

In 2010, males were more frequently diagnosed with chronic or acute hepatitis B, with 1,805 total cases and a rate of 171.4 cases per 100,000 population. Females were reported to have 1,008 cases, at a rate of 96.4 per 100,000 population.

Hepatitis **B** Rates in the City of Houston, 2010*



*Rate is cases per 100,000 population, Source: HDHHS case files

Hepatitis C can be spread by shared needles.

Economic Impact of Hepatitis

Viral Hepatitis is a serious disease of liver inflammation and represents a substantial health and economic burden. Three viruses, hepatitis A virus (HAV), hepatitis B virus (HBV) and hepatitis C virus (HCV) cause most viral hepatitis in the United States.[1]

A CDC report noted estimates of total annual costs of hepatitis A to be $353 million (in 2004 dollars) including medical costs of $92 million and work loss costs of $261 million. Annual total cost of hepatitis B is estimated to be $886 million (in 2004 dollars). Of this total cost, medical costs account for $368 million and work loss costs account for another $518 million. Estimated annual cost of hepatitis C is $824 million (in 2004 dollars) including $272 million in medical expenses associated with hepatitis C treatment and $552 in work loss costs.[2]

Hepatitis A and B vaccines are highly effective in preventing HAV and HBV infection. Without childhood HAV vaccination, the 2005 birth cohort of 4 million children would be expected over their lifetimes to have 199,000 HAV infections and 82 deaths, resulting in $134 million in total costs.[3]

Every $1.00 spent on perinatal hepatitis B vaccination is estimated to save $14.70 in medical costs.[4]

An estimated 4.4 million Americans are living with chronic hepatitis; most do not know they are infected. —CDC

Healthy People 2020

Objective IID-25: Reduce new hepatitis B infections in adults aged 19 and older

New Hepatitis B Cases
Rate per 100,000 population
(persons aged 19 years and older)

Area	Rate
National Baseline 2007	2.0
Target for 2020	1.5
Harris County 2010*	1.1*
State of Texas 2010*	1.6*
United States 2009*	1.5*

*All Ages

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.
- Enable people, such as those with HIV/AIDS, to prevent and treat hepatitis via community outreach and contacts with people served by public health.
- 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/hepatitis*

TDSHS: *www.dshs.state.tx.us/idcu/disease/hepatitis*

National Prevention Information Network: *www.cdcnpin.org/scripts/hepatitis/index.asp*

Hepatitis Foundation International: *www.hepfi.org*

1. U.S.Department of Health & Human Services. Viral Hepatitis: the secret epidemic. HHS Website. Available at http://www.hhs.gov/asl/testify/2010/06/t20100617b.html. Accessed January 24, 2012.
2. Centers for Disease Control and Prevention, Hepatitis. National viral hepatitis elimination strategy. CDC Website. Available at http://www.cdc.gov/hepatitis/Resources/MtgsConf/NatVHPrevConf2005/Tuesday/B6_Bresnahan.pdf. Accessed January 24, 2012.
3. Rein DB, et al. Cost-effectiveness of routine childhood vaccination for hepatitis A in the United States. *Pediatrics*. 2007;119(1):12-21. Available at http://www.pediatricsdigest.mobi/content/119/1/e12.full. Accessed January 24, 2012.
4. National Alliance of State and Territorial AIDS Directors, Hepatitis Appropriations Partnership. FY2012 Viral hepatitis funding recommendations. NASTAD Website. Available at http://www.nastad.org/Docs%5C102534_HAP.pdf. Accessed January 24, 2012.

Enteric Diseases

Raw or undercooked seafood can be a source of illness

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.

CDC estimates that each year roughly one in six Americans (or 48 million people) gets sick, 128,000 are hospitalized, and 3,000 die of foodborne diseases.

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 2003-2009

Number of Reported* Enteric Disease Cases and (Rate per 100,000) Houston/Harris County

	2003	2004	2005	2006	2007	2008	2009
Salmonella	465 (12.80)	522 (14.17)	496 (14.4)	505 (14.7)	523 (15.2)	771 (19.3)	482 (11.8)
Shigella	272 (7.49)	352 (9.55)	332 (9.7)	546 (15.9)	716 (20.8)	819 (20.6)	343 (8.4)
Campylobacter	88 (2.42)	139 (3.77)	124 (3.6)	106 (3.1)	141 (4.1)	189 (4.7)	158 (3.9)
E.coli (all Shiga toxin producing)	<5	<5	<5**	23 (0.7)	38 (1.1)	54 (1.4)	18 (0.4)
Hepatitis A	107 (2.95)	92 (2.50)	50 (1.5)	42 (1.2)	52 (1.5)	26 (0.7)	14 (0.3)
Vibrio (food-borne)	8 (0.22)	9 (0.24)	8 (0.2)	11 (0.3)	8 (0.2)	10 (0.3)	12 (0.3)

Healthy People 2020 targets for many of these diseases can be seen on the following page.
Sources: HCPHES Epidemiology Case Files and HDHHS Office of Surveillance and Public Health Preparedness Case Files
*Data for totals less than five are not released due to the possibility of individual identification. **Harris County Data not available.
Note: Prior to 2005, data shown was only for *E. Coli 015:H7*.

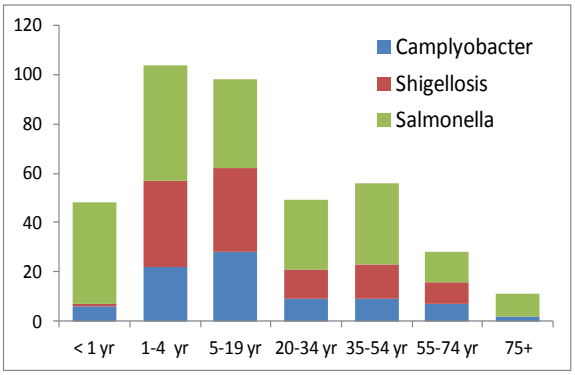
Population Differences

Males in Houston had a higher rate (27.8 per 100,000 population) of food-borne illness than females (25.0) in 2009.

Among reported cases of Salmonella, the most common enteric disease, in Houston for 2009, Hispanics had the highest case rate (23.1 per 100,000) followed by whites (16.0 per 100,000), the black population (11.3 per 100,000) and Asians (3.8 per 100,000).

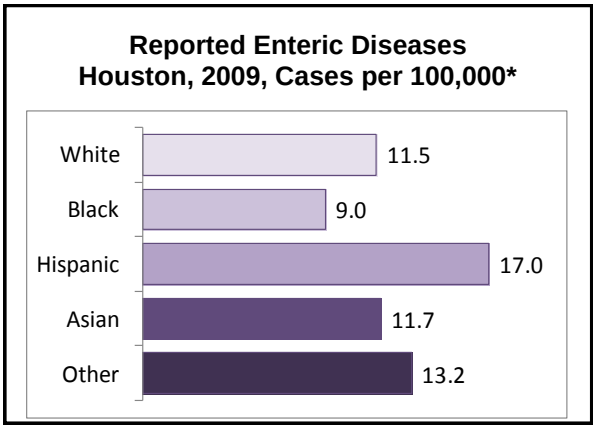
Young children are also at greater risk of food-borne illness than adults. The chart shows the differences in the number of cases of three of the most common enteric diseases according to age group.

Number of Cases per Age Distribution of Selected Foodborne Diseases in Houston, Texas 2009*



*Cases per 100,000 population
Source: HDHHS Office of Surveillance and Public Health Preparedness

Population Differences



* Race information is incomplete for about 51% of enteric disease cases

Economic Impact of Enteric Diseases

Enteric diseases collectively pose enormous medical and societal cost on communities and individuals. Microbiological agents such as bacteria, viruses and parasites cause enteric diseases. The estimated annual economic cost of illness caused by shiga toxin-producing *E. coli* (STEC O157) is $489 million (in 2010 dollars) in the U.S. The annual economic cost of salmonellosis, the illness caused by the *Salmonella* bacterium, is $2.7 billion (in 2010 dollars). The estimates include the medical costs due to illness, the cost of lost productivity, and the cost of premature death.[1]

Healthy People 2020

Objective FS-1: Reduction in infections caused by key pathogens transmitted commonly through food (Salmonella species)

Food-borne Pathogen Salmonella Species	
Area	**Cases Per 100,000**
National Baseline 2006-	15.2
Target for 2020	11.4
Houston/Harris County 2009	11.8
State of Texas 2010	19.4
United States 2009	15.2

Other Healthy People 2020 Target Rates	
Food-borne Pathogen	**Cases Per 100,000**
Campylobacter	8.50
E. coli O157:H7	0.60
Listeria monocytogenes	0.20

Public Health Actions

- Educate people about enteric diseases and how to prevent them.
- Monitor disease incidence and trends through methods such as eFORS (electronic foodborne disease reporting system) and PFGE (pulsed field gel electrophoresis).
- Investigate health problems in the community through collaborative efforts among health and regulatory 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/enterics* *www.cdc.gov/ncidod/diseases/food/index.htm*

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

1. United States Department of Agriculture, Economic Research Service. Foodborne illness cost calculator. USDA Website. Available at http://www.ers.usda.gov/Data/FoodBorneIllness/salm_Intro.asp. Accessed January 25, 2012.

Zoonotic Diseases, Animal Control

Overview

Zoonotic diseases are diseases caused by infectious agents that can be transmitted between animals and humans. According to the CDC, approximately 75% of recently emerging infectious diseases affecting humans are diseases of animal origin; approximately 60% of all human pathogens are zoonotic. Although there are over 150 recognized zoonoses, some of those of significance in Texas include: avian influenza, Chagas' Disease, dengue, Lyme disease, toxoplasmosis, and rabies.

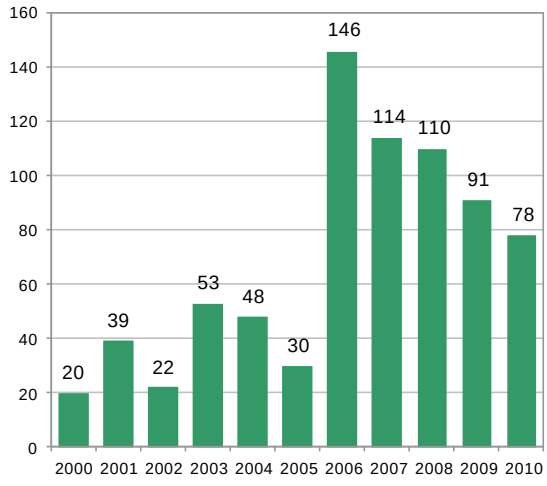
Rabies is a preventable viral disease of mammals most often transmitted through the bite of a rabid animal. The majority of rabies cases reported to the CDC each year occur in wild animals such as raccoons, skunks, bats, and foxes. Due to the widespread use of rabies vaccination, coupled with effective 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. However, in 2006, a local 16-year-old was fatally bitten by a rabid bat.

Fatalities usually result from instances when persons are not aware that they have been exposed. 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.

Trends: Houston/Harris County 2000-2010

Confirmed Cases of Animal Rabies In Harris County



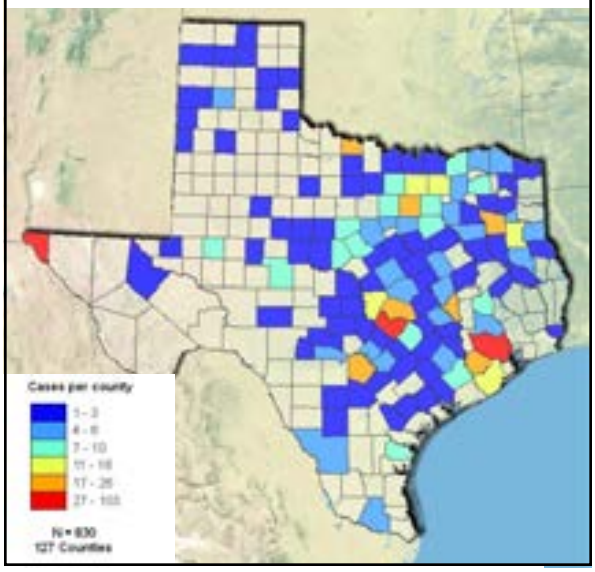
Source: TDSHS

In 2010, HDHHS investigated 2,068 bite cases, defined as bites or aggressive behavior by animals of all types. Of these, 1,414 (68%) bite cases were from dogs. Children under age 10 were victims in 260 dog bites.

HCPHES completed investigations of 1,611 bite cases within its jurisdiction in 2010, 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. Many bite cases were caused by unconfined animals (58%), and 76% of biting animals had identifiable owners. Twenty-three percent of bite injuries were to children aged 10 and under.

Geographic Distribution

Confirmed Animal Cases of Rabies in Texas 2009



Source: TDSHS

Economic Impact of Zoonotic Diseases

Zoonotic diseases can take many forms including rabies, Lyme disease, Swine flu, human brucellosis, echinococcosis, leishmaniasis, and food borne infections. The most common foodborne infections, some of which are zoonotic in nature, are estimated to cost the United States $5.6 billion to $9.4 billion (in 1993 dollars) in medical charges and lost productivity.[1]

The most well known zoonotic disease is rabies, which is estimated to cost $150 million annually in direct healthcare costs.[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 usually include rabies vaccine and rabies immune globulin. Estimates from an economic evaluation of rabies prevention efforts in south Texas show that for every dollar spent on rabies prevention, between $4-$13 are saved.[2]

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.
- Educate residents about pets through programs such as the HCPHES public education program for pit bull owners to promote responsible ownership and bite prevention.
- 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

Houston 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/vscs*

American Society for the Prevention of Cruelty to Animals: *www.aspca.org*

1. Buzby, JC. Roberts, T. ERS Updates US Foodborne Disease Costs for Seven Pathogens. USDA, Food and Consumer Economics Division, Economic Research Service. Available at: .http://www.ers.usda.gov/publications/foodreview/sep1996/sept96e.pdf. Accessed December 1, 2011.
2. United States Department of Agriculture (USDA). Preventing Wildlife Rabies Saves Lives and Money. Available at: http://www.aphis.usda.gov/publications/wildlife_damage/content/printable_version/fs_economic_rabies_2011indd.pdf. Accessed December 1, 2011.

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Appendices

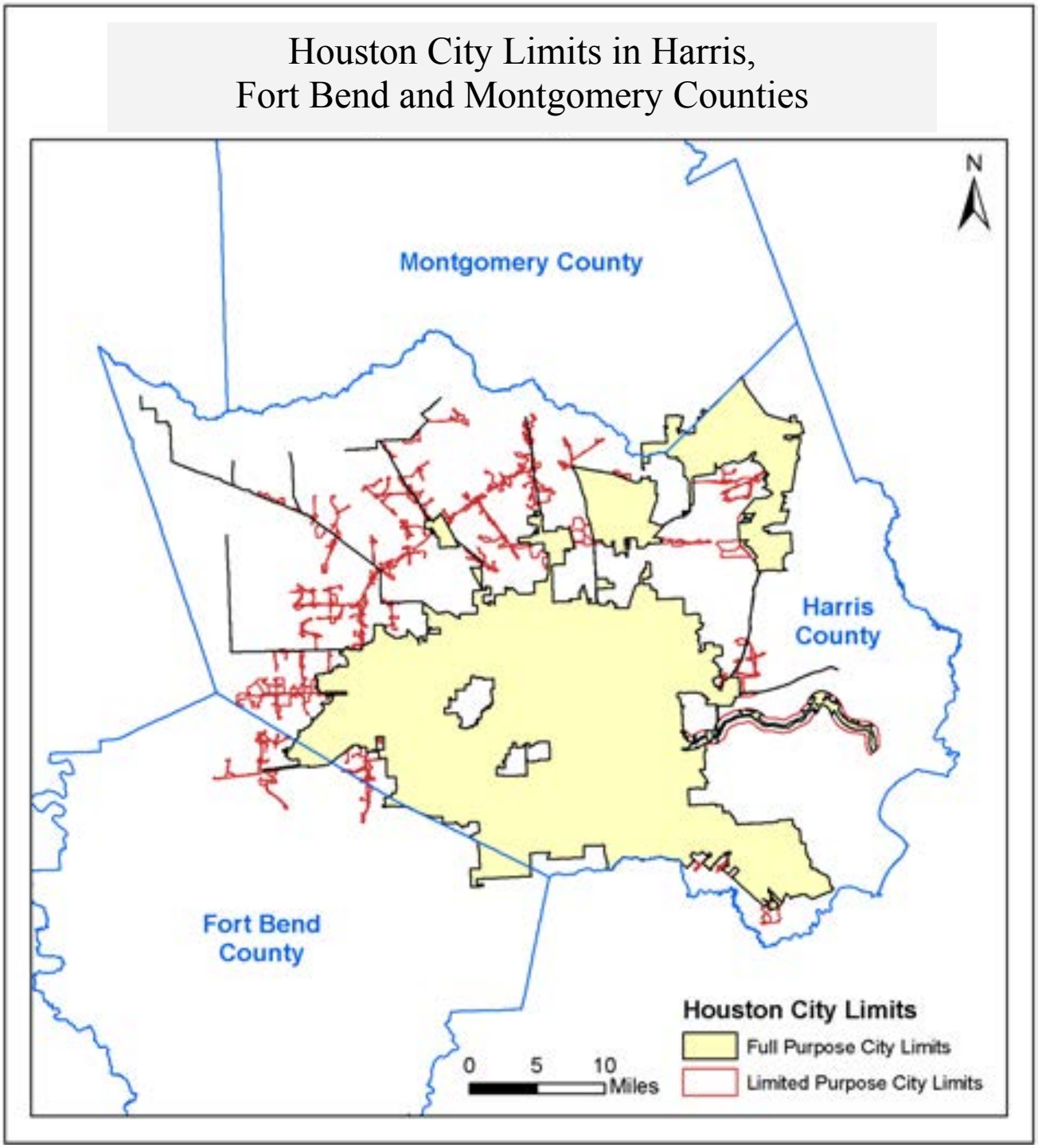
Appendix A—Demographic Tables

DEMOGRAPHIC TABLES 2010	Home Page: http://factfinder2.census.gov			
Annual Estimates of the Population: April 1, 2000 to April 1, 2010 Source: Population Division, U.S. Census Bureau	**City of Houston**	**Harris County**	**State of Texas**	**United States**
April 1, 2010 Census 100% Count	2,099,451	4,092,459	25,145,561	308,745,538
July 1, 2008 Annual Census Population Estimate	2,242,193	3,984,349	24,326,974	304,059,724
April 1, 2000 Census 100% Count	1,953,631	3,400,578	20,851,820	281,421,906
April 1, 2000 estimates base	1,974,304	3,400,578	20,851,792	281,424,602
Percent Change, 2000 to 2010	7.5%	20.3%	20.6%	8.8%
2010 American Community Survey 1-Year Estimates Source: U.S. Census Bureau	***All Percentages based on Population in Households***			
2010 Household Population Sample Total	**2,107,208**	**4,110,771**	**25,257,114**	**309,349,689**
* Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population.				
Race/Ethnicity: 2010	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Hispanic ethnicity (of any race)	43.8%	40.8%	37.6%	16.3%
Non-Hispanic ethnicity by race:				
White	25.6%	33.0%	45.3%	63.7%
Black or African American	23.1%	18.4%	11.5%	12.2%
Asian	5.9%	6.1%	3.8%	4.7%
American Indian/Alaska Native	0.2%	0.2%	0.3%	0.7%
Native Hawaiian/Pacific Islander	0.0%	0.1%	0.1%	0.2%
Two or more races/some other race	1.3%	1.4%	1.4%	2.1%
Age Group: 2010	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Residents under age 18	25.7%	28.0%	27.2%	24.0%
Residents age 65 and over	9.1%	8.2%	19.6%	13.1%
Educational Attainment: 2010	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Population 25 years and over	**1,337,138**	**2,543,972**	**15,722,122**	**204,288,933**
High-school graduates or higher	74.3%	78.0%	80.7%	85.6%
Bachelor's degree or higher	28.4%	27.8%	25.9%	28.1%
Foreign-born: 2010	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Foreign-born Residents	28.7%	25.4%	16.4%	12.9%
Place of birth for foreign-born:	**605,186**	**1,044,010**	**4,142,031**	**39,955,854**
Latin America	71.5%	70.6%	72.8%	53.1%
Asia	19.6%	20.8%	18.6%	28.2%
Europe	4.0%	4.0%	4.2%	12.9%
Africa	4.3%	3.8%	3.3%	4.0%
Language spoken at home: 2010	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Population 5 years and over	**1,935,696**	**3,773,828**	**23,327,776**	**289,215,746**
Number speaking language other than English	**897,535**	**1,627,926**	**8,119,597**	**59,542,596**
Language other than English	46.4%	43.1%	34.8%	20.6%
Speak English less than "very well"	23.8%	21.1%	14.4%	8.7%
Spanish	37.3%	34.4%	29.6%	12.8%
Asian and Pacific Islander languages	4.1%	4.4%	2.6%	3.2%
Other Indo-European languages	3.4%	3.1%	2.0%	3.7%
Other languages	1.2%	1.5%	0.6%	0.9%

Income & Poverty: 2010 * INCOME IN THE PAST 12 MONTHS	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Median household income	$42,355	$50,422	$51,237	$50,046
All people below poverty	22.8%	18.7%	16.6%	15.3%
Individuals age 18 to 64 years of age below poverty	19.3%	15.8%	15.6%	14.2%
Children under age 18 below poverty	34.7%	27.5%	25.7%	21.6%
Adults age 65 and over below poverty	14.0%	11.6%	10.7%	9.0%
* Poverty Threshold for 2010: One person (unrelated individual) = $11,139; Four persons = $22,314				
Source: U.S. Census Bureau, Housing & Household Economic Statistics Division				
http://factfinder2.census.gov				
Households: 2010	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Total households: (in 2010 sample)	**762,309**	**1,395,382**	**8,738,664**	**114,567,419**
Total families	464,254	950,135	6,091,590	76,089,045
Percent of **families** with own children < 18	30.4%	35.7%	34.2%	29.7%
Married-couple families	63.0%	68.7%	72.0%	73.2%
% of **Married-couple** families with own children < 18	47.9%	50.6%	46.1%	41.1%
Male householder, no wife present	10.4%	8.5%	7.2%	7.1%
% of **Male-headed** families with own children < 18	49.8%	47.6%	47.5%	48.1%
Female householder, no husband present	26.6%	22.8%	20.8%	19.7%
% of **Female-headed** families with own children < 18	56.8%	59.4%	60.1%	56.8%
Non-family households	39.0%	31.9%	30.3%	33.6%
Householder living alone	82.2%	81.4%	81.8%	81.6%
65 years & older	17.6%	18.3%	24.1%	28.3%
Grandparents: 2010	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Number of grandparents living with own grandchildren under 18 years in households	**45,428**	**84,690**	**589,450**	**5,396,969**
Solely responsible for grandchildren	47.9%	51.9%	58.3%	53.4%
VETERAN STATUS: 2010	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Civilian population 18 years and over	**1,564,360**	**2,958,486**	**18,268,116**	**234,137,287**
Civilian veterans	5.5%	6.2%	8.8%	9.3%
DISABILITY STATUS OF THE CIVILIAN NONINSTITUTIONALIZED POPULATION: 2010	**City of Houston**	**Harris County**	**State of Texas**	**United States**
Population 5 years and over	**1,920,722**	**3,751,150**	**22,850,112**	**284,155,765**
Population 5 years and under with a disability	0.4%	0.6%	0.6%	0.8%
Population 5 to 17 years with a disability	4.1%	4.0%	5.5%	5.2%
Population 18 to 64 years with a disability	8.3%	7.7%	10.1%	10.0%
Population 65 years and over with a disability	37.9%	36.8%	40.6%	36.7%

Appendix B—Maps

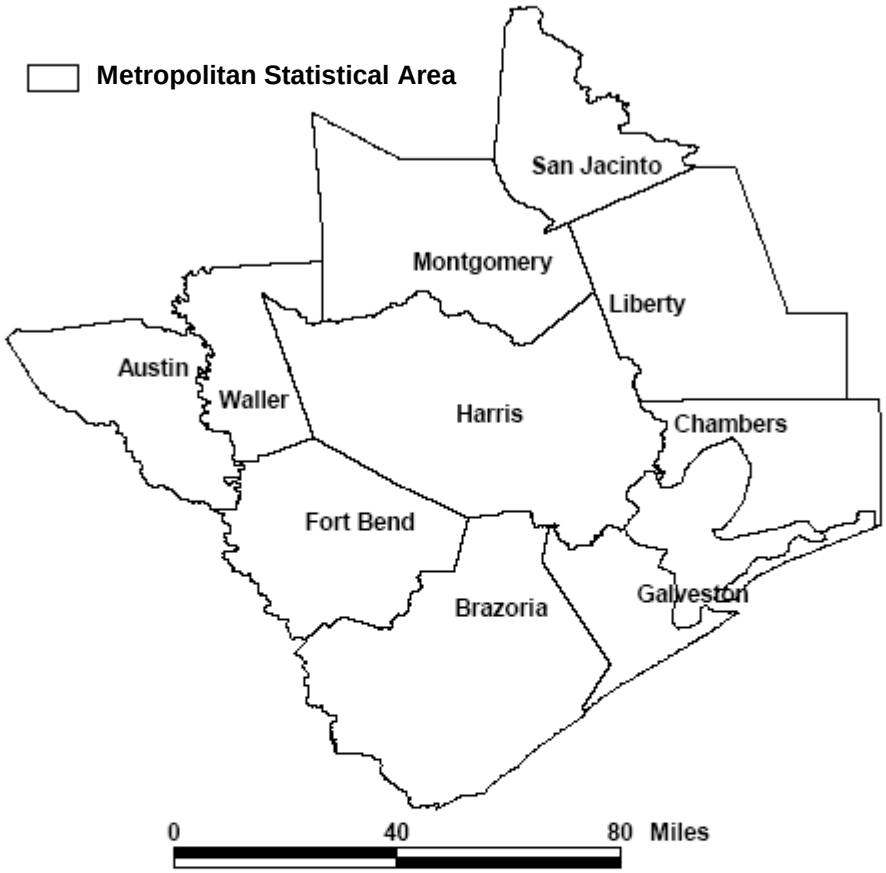
Map of Houston/Harris County



Map developed by HDHHS Community Health Statistics, 2009.
Note: The Houston city limits have had only very minor adjustments since 2009, so the map is essentially the same for 2012.

Map of Houston-Baytown-Sugar Land MSA

Houston-Baytown-Sugar Land Metropolitan Statistical Area 2012



Source: Definition: U.S. Office of Management and Budget, 2009, with counties included in the MSA.
Map created by HDHHS Office of Health Planning and Evaluation, 2006.
http://www.whitehouse.gov/sites/default/files/omb/assets/bulletins/b10-02.pdf
Note: The Houston-Baytown-Sugarland Metropolitan Statistical Area is unchanged since creation of this map in 2006.

Appendix C—Frequently Used Websites

U.S. Census Bureau: www.census.gov
American FactFinder, for local census data: http://factfinder2.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 2020: www.healthypeople.gov

Appendix D —Healthy People 2020 Sources

The first two measures on each table, the National Baseline and the Target for 2020, 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. When other sources are used, they are noted below:

Obesity in Youth: Data from CDC Youth Risk Behavior Surveillance System Survey.
Injury Risk: Harris County and Texas rate from TDSHS, national rate from CDC.
Child Abuse: Local and Texas Statistics from the CPS in Harris County Annual Report. The U.S. rate is from CDC.
Alcohol and Drug Abuse: Local and Texas data from TDSHS, 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 and Texas.
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, 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, 2008.
Communicable Diseases: Local and Texas data are from HDHHS and HCPHES case files and TDSHS. National data and some state data are 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	Pre-hospital 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
TCEQ	Texas Commission on Environmental Quality
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

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 Health Statistics 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