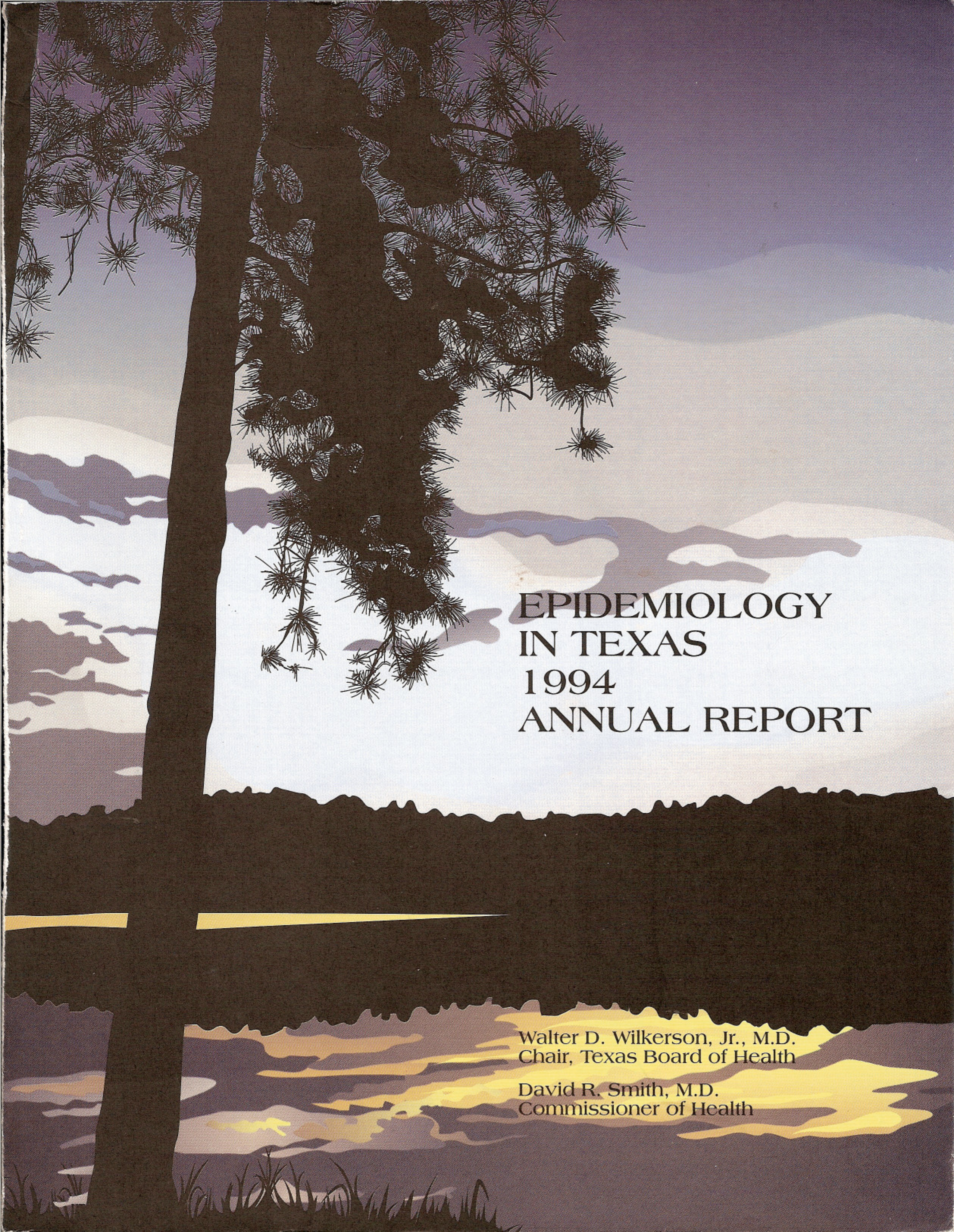

EPIDEMIOLOGY IN TEXAS 1994 ANNUAL REPORT

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EPIDEMIOLOGY IN TEXAS
1994
ANNUAL REPORT

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Foreword

The science of epidemiology has been the focus of increased.public interest recently. As portrayed in best selling novels, in movies, and on television, epidemiologists pursue strange, exotic, and deadly diseases - discovering the causes and cures rapidly and dramatically.

In reality, however, epidemiologists spend most of their time tracking familiar diseases, recommending standard control measures, and emphasizing the importance of such mundane tasks as accurate record keeping and reporting. Though not always glamorous, the role of epidemiology in disease prevention and control is certainly important. Common diseases affect the health of many more Texans than do the occasional rare imports from other countries. Collecting, analyzing, and assessing the trends of common as well as exotic diseases are vital to the public's health.

Some of the most compelling work done by epidemiologists at the Texas Department of Health during 1994 is described in this report. In addition to the standard surveillance and outbreak reports on infectious diseases, numerous reports on investigations of noncommunicable diseases and conditions are included. Investigations into public concerns about excessive cancers or birth defects can allay unwarranted fears or indicate areas that need further study or action. Continued analysis of unintentional injuries can demonstrate what needs to be done so that these "accidents" no longer "just happen." Finally an ongoing look at illnesses and injuries in our workforce can alleviate on-the-job trauma, chemical exposures, and other adverse health conditions.

Epidemiology has come a long way from the time John Snow tracked cholera in London. What has not changed, however, is the fact that timely information, accurate analysis, and scientific insight into health data are essential to effective public health intervention. This report summarizes one year's work of many fine epidemiologists in our state, regional, and local health departments. Although these efforts are rarely dramatic and often unseen, they contribute immeasurably to the health and welfare of every Texan.

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Contents

Preface

Disease Surveillance

Public health agencies use surveillance to target interventions; set program priorities; and plan, implement, and evaluate their programs. Epidemiologic surveillance includes systematic collection, analysis, interpretation, and dissemination of a variety of health data including demographic, environmental, laboratory, morbidity, and mortality data. Surveillance also includes obtaining and evaluating information on animal reservoirs and vectors, investigating epidemics and individual cases, and conducting special studies and surveys.

Disease surveillance in Texas has relied on a reporting system whereby health professionals notify their local health authorities of infectious and other reportable diseases and conditions. These reports are forwarded to the Texas Department of Health (TDH). Surveillance data must be current and complete if actual occurrence and distribution of disease are to be understood. During 1994 several programs were responsible for coordinating the surveillance of infectious disease, chronic disease, occupational disease, injury, and health conditions related to the environment. These programs included the Infectious Disease Epidemiology and Surveillance Division, the Zoonosis Control Division, the Noncommunicable Disease Epidemiology and Toxicology Division, the Injury Prevention and Control Program, the Tuberculosis Elimination Division, the Immunization Division, the Bureau of HIV and STD Prevention, the Bureau of Laboratories, and the Bureau of Chronic Disease Prevention and Control.

Reporting

Texas law requires that certain conditions be reported and that the reports (with a few exceptions) include the patient's name, date of birth, sex, race/ethnicity, city of residence, date of onset, physician's name, and method of diagnosis. The exceptions are as follows. Chickenpox is reported by number of cases. HIV infections in adults are reported by unique number, sex, race, ethnicity, county, and zip code of residence. For specific diseases, additional epidemiologic data may be requested, and in outbreak situations, it may be necessary to identify susceptible individuals and to recommend specific control measures. Morbidity data on reportable diseases and conditions also are obtained through other means such as laboratory reports, completed case investigation forms, and death certificates that have been filed with the TDH Bureau of Vital Statistics.

Several conditions were added to the list of reportable diseases in 1994: tuberculosis infection in those under 15 years of age, hemolytic uremic syndrome, *Escherichia coli* O157:H7, relapsing fever, hantavirus, invasive group A streptococcal disease, chancroid, spinal cord injury, and near drowning. Diseases that are no longer reportable include coccidioidomycosis, histoplasmosis, influenza and flu-like illnesses, leptospirosis, psittacosis, Q fever, toxic shock syndrome, tularemia, and Reye's syndrome. The *Reportable Conditions in **Texas*** form (TDH Stock No. 6-101a) lists all currently reportable conditions in Texas and provides guidelines for reporting (Appendix A). This form also includes phone numbers where professional staff may be reached for consultation. Reporting forms may be obtained by calling the various divisions to which reports are made.

TDH has implemented a 24-hour, toll free telephone reporting system. Health professionals who call (800) 705-8868 during business hours reach the nearest local health department; after hours and on weekends, they reach TDH staff who record reports of public health emergencies and other health conditions that require immediate health department notification.

Explanatory Notes

This report contains data for the reporting period of January 1 through December 31, 1994. A case was included only if the patient was a resident of Texas and either had onset of disease during the 1994 calendar year or the case was first reported in 1994. The patient's county of residence was used for reporting purposes, regardless of where the exposure, onset of signs and symptoms, diagnosis, or hospitalization took place. Nonresidents were not included in Texas morbidity or this report, even if they became ill, were hospitalized, or had their illness diagnosed in Texas. Nonresident patients were referred through an interstate reciprocal notification system to the appropriate State Epidemiologist in the state of residence.

All incidence and mortality rates in this report are expressed as the number of reported cases or deaths per 100,000 population unless otherwise specified. Limitations inherent in population projections, as well as underreporting, affect rate comparisons for different population groups or time periods. Rates based on small frequencies should be interpreted with caution since sampling errors may be large. State and county population data used in computing incidence rates were provided by the TDH Bureau of State Health Data and Policy Analysis (BSHDPA). Mortality data were provided by the TDH Bureau of Vital Statistics. Statistical summaries of reportable diseases are included throughout this report and also are published bimonthly in the TDH newsletter, *Disease Prevention News.*

With one exception, TDH uses the race/ethnicity designations provided by the US Department of Commerce and published in the Centers for Disease Control and Prevention Manual of Procedures for National Morbidity and Public Health Activities. For reporting purposes, when an individual is of mixed racial or ethnic origin, the category which'most closely reflects his or her recognition in the community is used. Unless otherwise noted, these definitions apply:

White: Persons having origins in any of the original people of Europe, North Africa, or the Middle East.

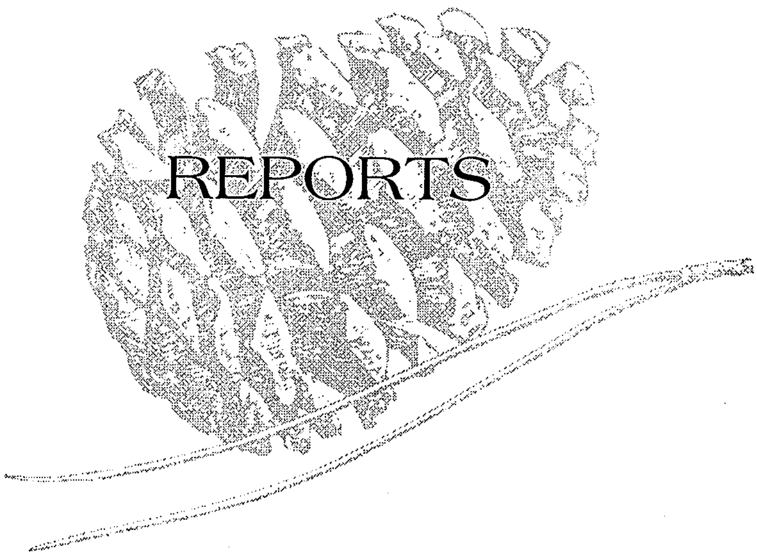
Hispanic: Persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin regardless of race.

African American: Persons having origins in any of the black racial groups of Africa. (CDC uses the term "black.")

Asian or Pacific Islander: Persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands (including China, Japan, India, Korea, the Phillipines, and Samoa).

American Indian or Alaskan Native: Persons having origins in any of the original peoples of North America and who maintain cultural identification through tribal affiliation or community recognition.

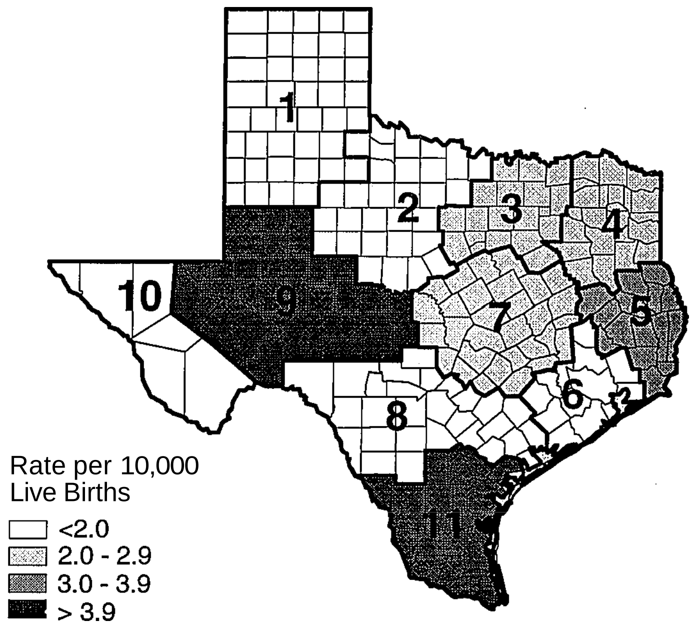
REPORTS



Anencephaly Trends

Anencephaly is a severe birth defect characterized by partial or total absence of the brain. Texas does not currently collect information on cases of this malformation statewide. However, studies have indicated that a high proportion of births with this neural tube defect can be detected through surveillance of live birth, death, and fetal death certificates. Since 1986, the Texas Department of Health has conducted surveillance of this defect through systematic review of these vital record sources. In the 10-year period from 1983 through 1992, prevalence rates of anencephaly have ranged from 3.2 to 4.2 per 10,000 live births. In 1993, however, only 70 births with this defect were identified from birth, death, and fetal death records for an overall prevalence rate of 2.2 births per 10,000 live births.

Figure 1. Prevalence of Anencephalic Births by Public Health Region, 1993



The reasons for this decrease in prevalence in 1993 are unknown, but could include the possibility of less documentation of this defect on the vital records, greater use of prenatal diagnosis, or a positive effect of folic acid supplementation on pregnancy outcomes. In 1992, the Centers for Disease Control and Prevention released recommendations for the use of folic acid to reduce the risk of having a pregnancy affected with a neural tube defect. The recommended preventive dose for all women of childbearing age who are capable of becoming pregnant is 0.4 mg of folic acid per day. It will be important to continue to monitor the prevalence of anencephaly through vital records to determine whether this downward trend of the prevalence of anencephaly continues.

Figure 2. Prevalence of Anencephaly by Race/Ethnicity of Births, 1993

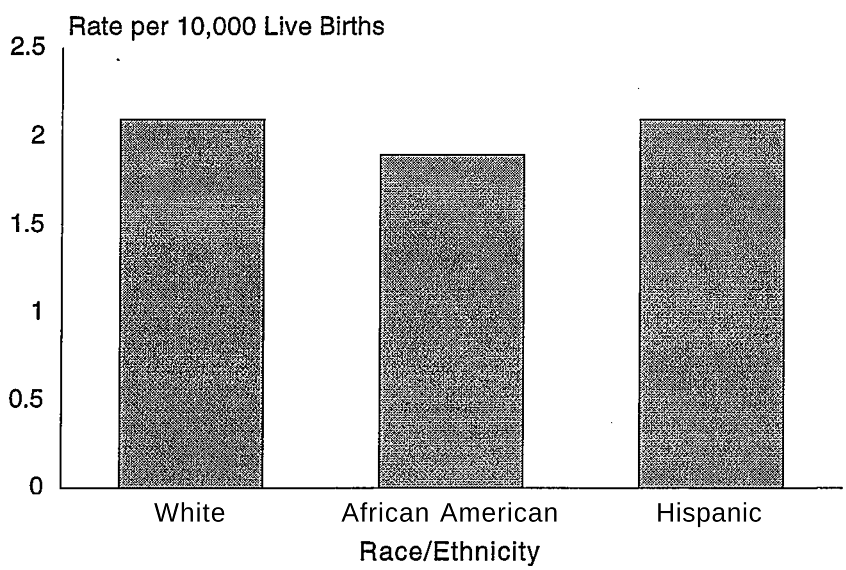


Figure 1 shows the prevalence of anencephalic births for 1993 by Public Health Region. Public

Health Region 9 had the highest prevalence (4.7 births per 10,000 live births) followed by Public Health Region 11 (4.2 births per 10,000 live births).

The prevalence of anencephaly varied by the gender of the child, but showed little variation by the mother's ethnicity/race in 1993. Female births had a prevalence of 2.7 per 10,000 live births compared with 1.6 for male births. Figure 2 shows the prevalence of anencephaly by mother's ethnicitylrace. The prevalence of this defect ranged from 1.9 per 10,000 live births for African American mothers to 2.3 per 10,000 for Hispanic mothers.

The prevalence of anencephalic births did not vary by maternal age. A strong positive trend was found between the mother's number of previous live births and the prevalence of anencephaly ($p < 0.01$). Mothers who reported three or more previous live births had the highest prevalence (5.9 births per 10,000 live births) of births with anencephaly.

Noncommunicable Disease Epidemiology and Toxicology Division, (512)458-7222

Botulism - Foodborne Outbreak in El Paso

Foodborne botulism is caused by ingestion of food contaminated with preformed botulinal neurotoxin produced by the bacteria *Clostridium botulinum.* Seven types, A through G, of *C. botulinum* exist. Spores of *C. botulinum* are found in soil throughout the United States. Foodborne botulism may vary from a mild illness to a serious disease that can be fatal. The illness is characterized by blurred or double vision, difficulty swallowing, and dry mouth followed by a descending symmetric paralysis. Symptoms occur 12 to 36 hours after ingestion of the toxin.

From 1980 to 1993, three foodborne botulism cases were reported in Texas. All three patients were male. One patient died. Food histories were available for two patients. The source of toxin for one patient was a meal left on the kitchen counter overnight and consumed the next day. The source of toxin for another patient was improperly stored boiled potatoes.

On April 10, 1994, the Texas Department of Health (TDH) and El Paso City-County Health and Environmental District (EPCCHED) were notified of two possible cases of adult foodborne botulism. Surveillance efforts initiated by the El Paso City-County Health and Environmental District identified several additional patients with signs and symptoms consistent with foodborne botulism. All patients reported a history of eating at a single El Paso restaurant on April 8 or April 9, 1994. An investigation was initiated by staff of the EPCCHED, TDH, and Centers for Disease Control & Prevention, Atlanta, GA.

For this investigation, the case definition of botulism was met when one or more of the following were present: 1) laboratory identification of botulinal toxin in patient's serum, 2) findings compatible with botulism intoxication on electromyography, or 3) isolation of *Clostridium botulinum* from stool in a patient with a compatible illness.

Twenty-four case-patients were identified: 17 had *Clostridium botulinum* type A in their stool specimens; seven of these also had botulinal toxin type A identified in serum specimens. The patients ranged in age from 12 to 59 years; 12 were female. They had onset of illness on April 9 (5 patients), April 10 (10), April 11 (6), April 12 (2), and April 14 (1). Nineteen patients were hospitalized; four required mechanical ventilation. A majority of patients experienced fatigue (83%), blurred vision (78%), double vision (78%), nausea (72%), dizziness (72%), and dry mouth (61%). Eight patients experienced ptosis and six developed upper and/or lower extremity paralysis. None died.

Based on meal tickets from the implicated restaurant, at least 239 persons in 104 parties ate in the restaurant or took food out on April 8 or April 9, 1994. A total of 202 patrons were interviewed. All patients ate either skordalia (a cold potato and garlic dip) or eggplant dip. Eating skordalia was strongly associated with botulism (RR=13.7, p<0.00001). Eating eggplant dip was also associated with botulism (RR=9.6, p=0.00005). No other food item was associated with illness. No patients ate both skordalia and eggplant dip. Botulinal toxin was detected in leftover skordalia dip and from a container of eggplant dip. Toxin was identified only in skordalia dip and eggplant dip. None of the ingredients used to make skordalia or eggplant dip contained botulinal toxin.

Skordalia and eggplant dips are made at the restaurant every two-three days. The most recent batch of skordalia dip was made on April 8 and first served at dinner on April 8. The skordalia dip was made by baking two foil-wrapped potatoes in a conventional oven set at 450°F for approximately two hours on the evening of April 7. After they were cooked, the potatoes were removed from the oven and left on a counter, at room temperature, for about 18 hours. On April 8 the foil was removed, and the potatoes were peeled and placed in a food processor. Onion, garlic, feta cheese, bread, olive oil, salt, and pepper were added and mixed. The skordalia dip was stored immediately adjacent to the eggplant dip in a reach-in refrigerator.

This is the largest known outbreak of botulism in Texas and the largest in the United States since 1983. Six other botulism outbreaks in the United States from cooked, foil-wrapped potatoes held at ambient temperature have been reported since 1978. Botulinal toxin may have been produced from the germination of *Clostridium botulinum* spores on the potatoes which were wrapped in aluminum foil. The foil would have provided the anaerobic environment necessary for toxin production. The oven temperature apparently was insufficient to kill the spores and may have stimulated spore germination by eliminating competing organisms and providing a heat shock for the spores. Finally, the proximity of the skordalia and eggplant dip in the cooler could have facilitated cross-contamination of the eggplant dip by the skordalia if the same serving spoon was used for both.

Infectious Disease Epidemiology and Surveillance Division (512)458-7676

Cancer Cluster Investigations

Introduction

Cancer is a very common disease. One out of every three people alive today will be diagnosed with some type of cancer during his or her lifetime. Cancer is the second leading cause of death in Texas, with approximately 31,000 Texas residents dying of cancer each year. Despite the statistics, the Texas Department of Health Cancer Registry Division and Health Studies Program receive calls on a weekly basis from citizens, environmental groups, physicians, and others with concerns about "too much cancer."

Although many of the calls and questions can be answered through educational efforts, a substantial number of the inquiries result in a formal investigation to:

- examine the occurrence of cancer (incidence or mortality) in a defined geographic area
- determine if there is an excess of cancer for that area

In 1994 the Health Studies Program in the Bureau of Epidemiology and the Cancer Registry Division conducted 62 cancer cluster investigations that addressed concerns of people living throughout the state (see Figure 1).

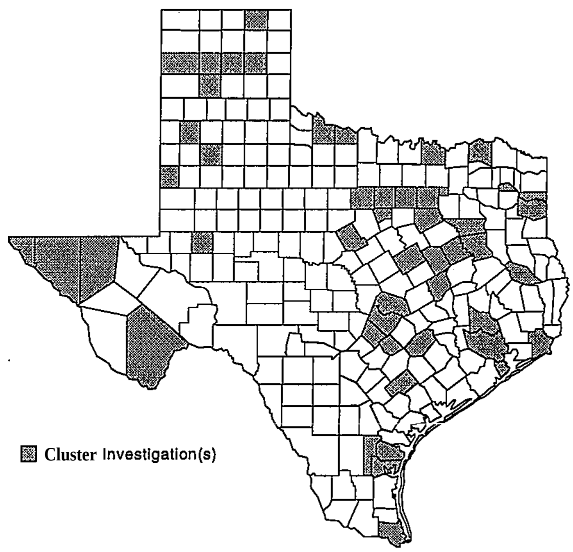
Investigation Protocol

The protocol for the investigation of a reported excess of cancer employs a three-tier methodology. Tier 1 involves gathering pertinent information from the personlagency making the inquiry. Staff collect information on the following:

- location of the alleged cluster
- cancer(s) of concern
- number of cases
- time period of concern
- environmental concerns

Information regarding general cancer facts and known risk factors for specific cancers are provided to the person or group making the inquiry. In many instances, the investigation is concluded at this point. If not, the investigation proceeds to Tier 2.

Figure 1. Cancer Cluster Investigations by County of Reported Cluster



Tier 2 involves the analysis of cancer incidence or mortality data for the geographic area of concern. The Cancer Registry Division is the repository of cancer incidence and mortality data for the state. The data are analyzed at either the city or county level and are compared with state or national rates. If the number of cancer deaths or cases is not statistically elevated, the investigation is concluded, and a report of the findings is forwarded to the personlagency that initiated the inquiry. If the number of cases is statistically elevated, further study may be warranted. The majority of the investigations, however, are concluded in Tier 2.

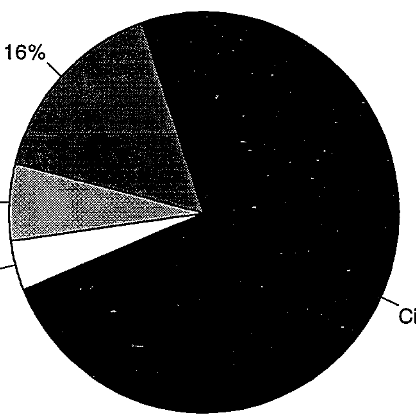
Additional studies conducted in Tier 3 may involve a variety of methodologies including:

- review of death certificates or hospital records to gain additional information on specific cases
- administration of a questionnaire to individuals diagnosed with cancer to determine possible risk factors
- formal epidemiologic study of a specific population or community

Investigations

Sixty-two investigations were conducted in 1994 by the Cancer Registry Division and the Health Studies Program, Bureau of Epidemiology. The majority of the investigations (74%) were initiated by individual citizens. Sixteen percent of the investigations originated from other state and federal agencies. Environmental groups, physicians, attorneys, and the media accounted for the remainder of the investigations (see Figure 2). Of the investigations initiated by individual citizens, the majority (68%) were initiated by women, 21% by men, and the gender of 11% was unknown.

Figure 2. Origin of Initial Cancer Cluster Inquiry



Cancer cluster investigations may cover any type of geographic division or area. Investigations typically involve the analysis of data for a single county or city, but may involve multiple counties or entire public health regions. Of the 62 investigations conducted in 1994, 46 (74%) were conducted at the city level, and 15 (24%) were conducted at the county level.

Two types of data are available for analysis in cancer cluster investigations; mortality data and incidence data. Mortality data were used in the majority (65%) of investigations in 1994 because mortality data are complete for the entire state. While many hospitals across the state are in compliance with state law that requires them to report new cases of cancer, many are not complete in their reporting of cases. For several regions of the state, cancer incidence data are not complete and cannot be used in the investigation of reported clusters. Twenty investigations, however, did examine cancer incidence data.

The five leading causes of cancer mortality in Texas are lung cancer, breast cancer, prostate cancer, colon cancer, and pancreatic cancer. The five leading cancers of concern in the investigations conducted in 1994, however, were leukemia, lung, colon, breast, and brain cancers. Table 1 lists the top ten cancer sites of concern in the 1994 investigations.

For the majority of the 62 cancer cluster investigations conducted in 1994, multiple cancer sites were evaluated for both males and females. Overall, approximately 545 separate analyses were conducted for specific cancer site and gender combinations. Of the 545 analyses, only five percent showed a statistically elevated excess number of cancers.

Table 1. Top 10 Cancer Sites by Number of Investigations

Cancer Site	No. of Investigations	Cancer Site	No. of Investigations
Leukemia	76	Pancreas	34
Lung	74	Prostate	32
Colon	50	Non-Hodgkin's	30
Breast	43	Bladder	22
Brain	38	Stomach	20

For each of the investigations in which a significant elevation of either cancer incidence or mortality was found, further study was conducted. In many cases, the detailed review of individual case data revealed the presence of known risk factors for the cancer site of concern (smoking and lung cancer). For selected investigations, however, special surveillance projects were initiated.

Noncommunicable Disease Epidemiology and Toxicology Division (512)458-7222

Cancers Amenable to Early Detection and Prevention

Cancer is the second leading cause of death, accounting for 30,989 (23%) of all deaths in Texas during 1993. To assess the impact of cancer on the Texas population, patterns in incidence and mortality for easily detectable or preventable cancers are discussed. Primary sites for these cancers include the lung, breast, colon, prostate, and cervix. These five cancer sites account for between 46% and 56% of all cancers in each racial/ethnic group. Behavioral risk factors and health practices also are presented.

The Texas Cancer Registry (TCR) of the Texas Department of Health (TDH) is responsible for the collection of cancer incidence data for the state. All facilities involved with either cancer diagnosis or treatment - such as hospitals, pathology labs, and radiation treatment centers - are required by law to report all cancer cases to TCR. The Registry maintains a database of all reported cases and conducts quality control and data consolidation procedures as well as data analyses. Prior to 1995, TCR had complete coverage (defined as at least 95% case ascertainment) in 5 of the 11 public health regions in Texas. Beginning in 1995, the area covered by TCR will be extended to include complete coverage in eight public health regions. However, the TCR goal continues to be to collect cancer incidence data for the entire state.

The Behavioral Risk Factor Surveillance System (BRFSS), a monthly telephone survey conducted by the TDH Bureau of Chronic Disease Prevention and Control, monitors various risk factors for chronic diseases as well as trends in early detection efforts. In addition, the data are used to monitor Texas' progress toward meeting many of the US Department of Health and Human Services health status objectives for the Year 2000.'

Methods

An incident case of cancer is defined as a report of a primary malignant neoplasm as recognized in International Classification of Diseases for Oncology.[2] Cancer incidence data from 1985 through 1991 for Public Health Regions 1, 5, 8, 10, and 11 were reviewed to determine primary cancer sites and consolidated to eliminate inclusion of multiple reports for a single case. In 1990, the five regions represented in this report had a combined population of 5.1 million, of which 49% were male and 51% were female. The racial and ethnic makeup included 46% white (non-Hispanic), 48% Hispanic, and 6% African American. Although African Americans constitute only a small percentage of the population in the five regions represented in the incidence data, the patterns of incidence and mortality observed for this group are comparable to national statistics.

Along with incidence data, cancer mortality data for the period 1989 through 1993 are included in the analysis. Data on all cancer deaths reported among Texans for that time period were derived from computerized data files provided by the TDH Bureau of Vital Statistics.

BRFSS randomly selected persons aged 18 years or older to survey them about their health habits. The 1993 survey used a special type of probability cluster sampling: a multi-stage-cluster-design procedure based on the Mitofsky-Waksberg method for random digit dialing[3] The 1994 survey used a list-assisted stratified random sample. Data are weighted to reflect the age, sex, and race distribution in Texas, as well as the probability of being drawn into the sample. Unless otherwise specified, BRFSS data presented in this report are from the 1994 survey.

Results

Lung Cancer. Lung cancer is the leading cause of cancer death among both men and women and is one of the most commonly diagnosed cancers among both sexes. During the study period, the lung cancer incidence rate in males was consistently higher than in females (Table 1). African American males had the highest incidence rate (114.7/100,000), followed by white males (87.0).

Table 1. Age-Adjusted Incidence (1985-1991) and Mortality (1989-1993) Rates Per 100,000 Population for Lung Cancer*

	White		Hispanic		African American	
Sex	Incidence	Mortality	Incidence	Mortality	Incidence	Mortality
Males	87.0	81.6	47.4	39.4	114.7	118.0
Females	39.1	36.1	14.7	12.4	34.1	32.2

*Rates are age-adjusted to the 1970 US population

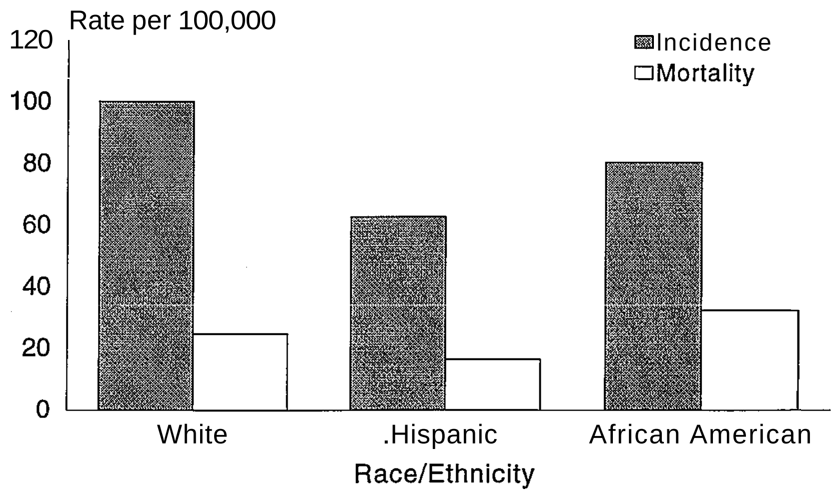
Hispanic females had lower rates of both incidence (14.7) and mortality (12.4) than any sex or racial/ethnic group. Incidence and mortality rates were of similar magnitude in each sex and racial/ethnic group.

Cigarette smoking has been identified as a risk factor for developing lung cancer and is the most preventable cause of death in our society. Healthy People 2000 Objective 3.4 aims to "reduce cigarette smoking to a prevalence of no more than 15 percent among people aged 20 and older." For people aged 20 and older, 21.1% now smoke. Of all people aged 18 and older, the percent of people who smoke has decreased from 23.6% in 1988 to 20.9% in 1993. This smoking prevention objective of 15% will not be met by the year 2000 if the current trend continues.

Breast Cancer. Breast cancer is the most commonly diagnosed cancer among females and the second leading cause of cancer death for that group. White females had the highest breast cancer incidence rate: 25% greater than the rate for African American females and 60% greater than that for Hispanic females (Figure 1). Despite having the highest incidence rate, white females had a lower mortality rate than did African American females (24.9 vs. 32.4, respectively). Hispanic women had the lowest mortality rate (16.6).

Early detection and treatment of breast cancer can reduce mortality by 30%.[4] Healthy People 2000 Objective 16.11 has set a goal to "increase to at least 80 percent the proportion of women aged 40 and older who have ever received a clinical breast examination and a mammogram, and to at least 60 percent those aged 50 and older who have received them within the preceding 1 to 2 years." Of those aged 40 and older, 70.6% reported having a mammogram and breast exam at some point in their lives. Whites reported 75.5% while non-whites reported 53.2%. Fifty-five percent of women aged 50 and older reported having a mammogram and breast exam within the past two years. Whites reported 59.7%, while non-whites reported 31.9%. Twenty-seven percent reported never having had one. Texas has al-

Figure 1. Age-Adjusted Incidence (1985-1991) and Mortality (1989-1993) Rates for Female Breast Cancer*



*Rates are age-adjusted to the 1970 US population

Table 2. Age-Adjusted Incidence (1985-1991) and Mortality (1989-1993) Rates Per 100,000 Population for Colon Cancer*

	White		Hispanic		African American	
Sex	Incidence	Mortality	Incidence	Mortality	Incidence	Mortality
Males	37.0	18.3	23.0	11.4	41.2	27.6
Females	26.2	12.7	14.3	6.5	32.5	20.5

*Rates are age-adjusted to the 1970 US population

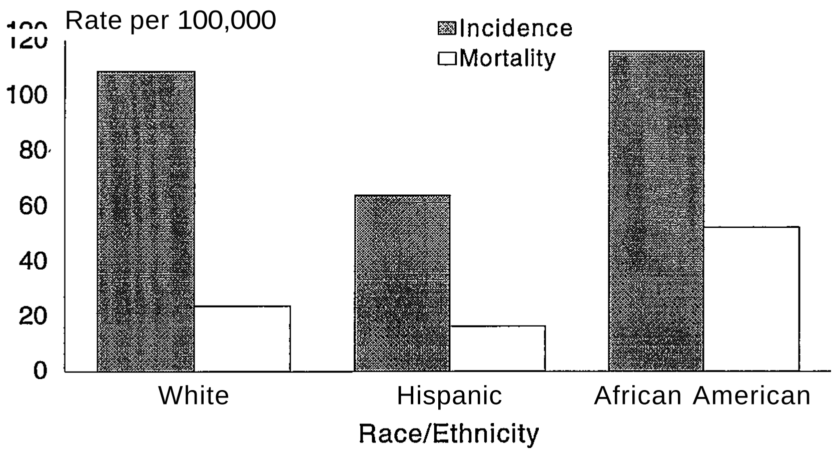
ready met the objective for women aged 50 and older and will easily meet the objective for women aged 40 and older if the current trend continues.

Colon Cancer. Colon cancer is among the top three diagnosed cancers and causes of cancer death. Females had lower colon cancer incidence and mortality rates than males did (Table 2). African American and white males had the highest colon cancer rates (41.2 and 37.0, respectively). Hispanics of both sexes had the lowest rates for both incidence and mortality.

Some research has suggested that screening for colon cancer with proctosigmoidoscopy may be effective in reducing the incidence and mortality of the disease.[5] Healthy People 2000 Objective 16.13 states "increase...to at least 40 percent those who have ever received proctosigmoidoscopy." The 1993 BRFSS survey asked, "Have you ever had a proctoscopic exam?" Of all persons aged 50 and older, 39.8% reported having a proctoscopic exam. This percentage increased with age. Texas has essentially met this objective already.

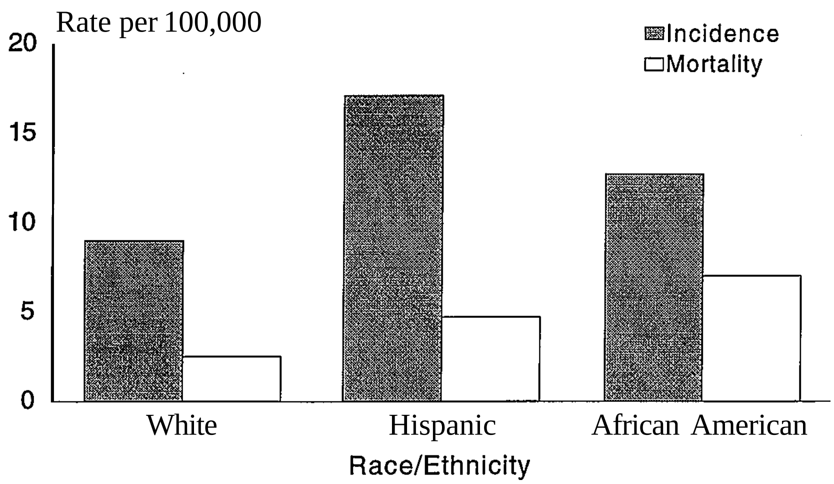
Prostate Cancer. Prostate cancer is the most commonly diagnosed cancer in men and the second leading cause of cancer death within this group. As seen in Figure 2, African American males experienced a slightly higher rate of prostate cancer (116.2) than white males (109.0) did, and both groups had higher rates than that of Hispanic males (64.1). Despite having a relatively high incidence rate, white males had a mortality rate only slighter greater than that for Hispanic ,males (24.0 versus 16.4). African American males had the highest mortality rate. Although mortality rates were low in comparison with incidence rates, reflecting the relatively high survival rate for prostate cancer, African Americans experience greater mortality than whites and Hispanics do.

Figure 2. Age-Adjusted Incidence (1985-1991) and Mortality (1989-1993) Rates for Prostate Cancer*



*Rates are age-adjusted to the 1970 US population

Figure 3. Age-Adjusted Incidence (1985-1991) and Mortality (1989-1993) Rates for Cervical Cancer*



*Rates are age-adjusted to the 1970 U S population

Cervical Cancer. The incidence of invasive cervical cancer has decreased in recent years, largely due to organized early detection programs. However, national data indicate that racial/ethnic differences in risk continue to exist. As seen in Figure 3, Hispanic women had 1.9 times the rate (17.1) of cervical cancer of'white women (9.0) and 1.4 times the rate of African American women (12.7). Although African American women had an incidence rate approximately midway between that of white and Hispanic women, this group had the highest mortality rate (7.0) and the poorest estimated survival. Prognosis is much poorer for invasive than *in situ* cervical cancer. In Texas, TCR data indicate that a diagnosis of cervical cancer at the invasive stage is more likely for African American and Hispanic women than for white women.

Studies in the United States and abroad have consistently shown dramatic reductions in the incidence of invasive cervical cancer following the implementation of cervical screening programs. Healthy People 2000 Objective 16.12 states "increase to at least 95 percent the proportion of women aged 18 and older with uterine cervix who have ever received a Pap test, and to at least 85 percent those who received a Pap test within the preceding 1 to 3 years." Of women aged 18 and older, 93.6% reported ever having a Pap test. Eighty-five percent of women reported having a Pap test within the last three years. Whites reported 88.9%, while non-whites reported 72.3%. Texas will meet this objective if the current trend continues.

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Behavioral Risk Factor Surveillance System
(512) 458-7200

Texas Cancer Registry (512) 502-0680

Cholera

Vibrio cholerae is the etiologic agent of cholera, a potentially severe diarrheal disease. No deaths were associated with the four cases of *V. cholerae* infection reported to the Texas Department of Health (TDH) in 1994. Epidemic cholera is usually associated with toxigenic *V. cholerae* that possess the somatic antigen group 01. Recently, however, *V. cholerae* with the somatic antigen 0139 has also caused epidemic cholera. Using physiologic properties, the bacterium may be classified as either of two biotypes, El Tor or Classical, and as one of two serotypes, Inaba or Ogawa. Nontoxigenic V. *cholerae* 0 1 and *V. cholerae* non-O1 also can cause diarrheal illness.

The first reported case-patient, a 28-year-old Hispanic woman from Hidalgo County, had onset of symptoms on February 2, 1994. She had travelled to El Salvador and became ill the day she returned home. She was hospitalized with an acute diarrheal illness and severe dehydration, and her stool sample was culture positive for *V. cholerae* O1 serotype Ogawa, biotype El Tor.

Two patients, a 64-year-old white man from Galveston County and a 65-year-old white woman from Montgomery County, became ill during a vacation cruise in Southeast Asia. The cruise began in Hong Kong on January 27 and arrived in Thailand on February 10. Twenty-one cases were identified in this outbreak; two of which were culture positive for V. *cholerae* 0139. Although specimens from both Texans were culture negative, both had positive cholera antitoxin titers.

The fourth patient was a 53-year-old white woman from Harris County who had just returned from Pakistan. Her symptoms began on July 28 and included nausea, vomiting, severe watery diarrhea, abdominal cramps, and headache. Her stool culture was positive for *V. cholerae* 0 1 serotype Ogawa, biotype El Tor. She was not hospitalized.

Infectious Disease Epidemiology and Surveillance Division (512)458-7676

Escherichia coli O157:H7 - An Outbreak Among University Students

On September 7, 1994, the Texas Department of Health (TDH) was notified of four cases of *Escherichia coli* O157:H7 (ECO157) infection and several other cases of hemorrhagic colitis among university students in Waco. Subsequent investigation identified 26 cases with onset between August 27 and September 9, 1994.

Case finding was conducted by distributing flyers to students on campus, issuing a press release, and reviewing emergency room records. A case-patient was defined as a resident of Waco who had diarrhea and culture-confirmed ECO157 infection, bloody diarrhea, or non-bloody diarrhea and abdominal cramps, with onset after August 14. Two case-control studies were done to identify'the source of infection, and to implicate specific foods.

All case-patients were university students who participated in a school cafeteria meal plan. Overall, 56% of the 12,109 students at the university participated in meal plans. Of the case-patients, 17 (65%) were women. The median age was 18 years. Six of 26 (23%) patients were hospitalized. None developed hemolytic-uremic syndrome. Fifteen (58%) had bloody diarrhea, and all had abdominal cramps. Twelve (46%) were laboratory confirmed, either by stool culture or serology.

Case-patients were more likely than controls to be freshmen (OR=4.6, $p=0.04$) and to live on campus (OR=9.0, $p<0.01$). Students could eat at any one or all of the four campus cafeterias. Laboratory confirmed disease was strongly associated with consumption of at least one meal at Cafeteria A (OR=undefined, $p<0.01$), but not with any other cafeteria.

Univariate analysis revealed that eating from the salad bar (OR=8.3, $p<0.01$) or from the pasta bar (OR=4.7, $p=0.01$) was associated with illness. After controlling for eating from the salad bar, analysis showed that eating from the pasta bar was not associated with illness. Specifically, eating items from the salad bar at Cafeteria A in the five days prior to illness onset was strongly associated with illness (OR=16.8, $p<0.01$). Ground beef consumption in the five days prior to illness onset was not associated with illness. In the second case-control study of students who reported eating salad, the only statistical association was with raw broccoli (OR=3.6, $p=0.02$).

Stool cultures were obtained from all food handlers at cafeteria A, and all were negative for ECO157. Molecular typing by pulsed-field gel electrophoresis on eight of the patients' culture isolates showed them to be related. No ECO157 was grown from any of the sampled foods, however no raw ground beef or salad items from the illness-onset dates were available.

A review of food handling practices revealed excellent cooking of ground beef products. However, there were several opportunities for cross-contamination of uncooked salad bar items by raw ground beef.

Uncooked food items may be cross-contaminated with ECO157 from raw ground beef. Impeccable care must be taken by food handlers to prevent it. This investigation provides evidence that thorough cooking of beef products, by itself, does not preclude the chance of infection and illness from ECO157.

Infectious Disease Epidemiology and Surveillance Division (512)458-7676

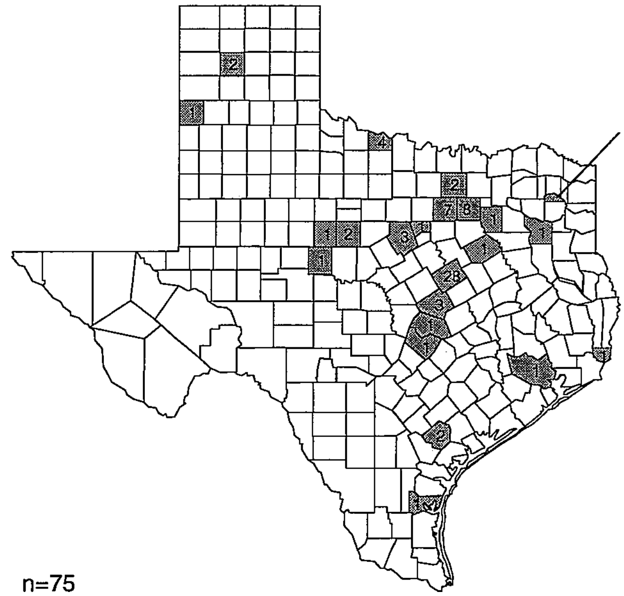
Escherichia coli 0 157:H7 (ECO157) Infections

Escherichia coli O157:H7 (ECO157) is a serotype of *E. Coli* that produces an illness with bloody diarrhea, often with severe abdominal pain and cramping. Typically, illness begins with a short prodrome of mild nonbloody diarrhea that progresses to grossly bloody diarrhea on the second or third day of illness. The bloody stools continue for 2 to 4 days, and the illness resolves 6 to 8 days after onset. Vomiting occurs in about half of the patients; fever occurs in less than one-third of patients. Bloody diarrhea is documented in most case reports, possibly due to the fact that patients who are more severely ill or who have been associated with an outbreak are more likely to seek medical care and have stool cultures for ECO157 performed.

Many enteric pathogens, including ECO157, can be carried in the gastrointestinal tract asymptomatically. Documentation for asymptomatic carriage is difficult because persons without diarrhea rarely have stool cultures performed. Asymptomatic persons are usually evaluated only if they have been identified as being at risk of infection: they are part of an outbreak investigation or they have been in close contact with individuals whose stool culture results were positive for ECO157.

Illness caused by ECO157 resolves without sequelae in most patients. However, some develop hemolytic uremic syndrome (HUS). HUS, usually seen in young children or elderly patients, consists of an acquired Coombs' negative hemolytic anemia, thrombocytopenia, and acute renal failure. The rate of HUS in patients with ECO157 infections ranges from 2% to 7%, depending on the population.

Figure 1. Counties with *E coli* 0 157:H7 Cases



ECO157 infections became reportable in Texas in February 1994. For the year, 75 culture-confirmed cases of ECO157 infection were reported. Most were unrelated sporadic cases spread throughout the state (Figure 1); however, one foodborne outbreak was investigated. (See *An Outbreak Among University Students* for the report of this investigation.) The age distribution of all patients ranged from 9 months to 79 years, with a mean age of 23 years. Twenty percent of all patients were children younger than 5 years of age. Whites accounted for the overwhelming majority of cases (94%). Females outnumbered males 42 (56%) to 33 (46%). Three patients developed HUS; none died.

Infectious Disease Epidemiology and Surveillance Division (512)458-7676

Hantavirus Pulmonary Syndrome

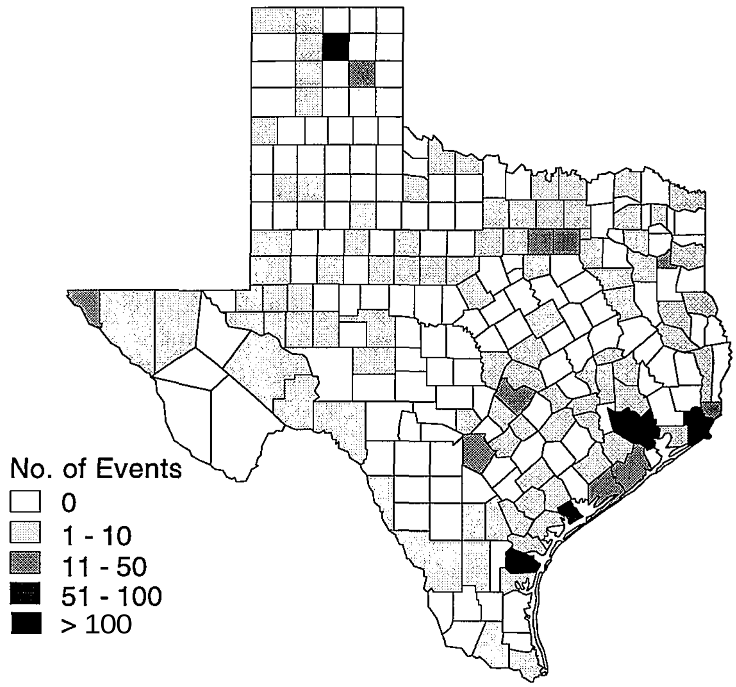
One case of hantavirus pulmonary syndrome was reported in Texas during 1994. The patient was a 29-year-old Hispanic woman from Kleberg County who had onset of illness on March 9, with fever, severe backache, and profuse diaphoresis. The patient had borderline diabetes and a two-pack-per-day smoking habit. She was seen at a local emergency room on March 13 complaining of weakness and feeling ill, and she fainted shortly after her arrival. On admission to the hospital, she had a temperature of 101.7°F, a blood pressure reading of 88/60 mm Hg, a pulse of 148, and a respiratory rate of 24 per minute. Her chest x-ray showed mixed interstitial and alveolar infiltrates of both lower lobes. She was intubated the day of her admission, extubated on March 19, and discharged from the hospital on March 28, 1994. The Texas Department of Health (TDH) Bureau of Laboratories reported that her serologic test for hantavirus antibody was positive on March 28. The Centers for Disease Control and Prevention confirmed these results on April 1, 1994. Subsequently, the TDH Zoonosis Control Division's Rapid Response Team trapped 90 rodents throughout the county. Sera from two of the 90 rodents were positive, indicating that the rodents had been infected with a hantavirus.

Infectious Disease Epidemiology and Surveillance Division (512) 458-7676

Hazardous Substances Emergency Events Surveillance

In October 1992, the Texas Department of Health (TDH) was awarded a cooperative agreement from the Agency for Toxic Substances and Disease Registry to conduct surveillance of hazardous substances emergency events in Texas. Staff began surveillance and data collection for these events in January 1993. A number of sources are used to collect information about the nature and public health impact of these spills and releases in Texas. These sources include state environmental agencies, local fire department hazardous materials units, hospitals, and federal agencies. Using a standard data collection form, staff collect data on emergency events that meet the case definition of an uncontrolled, illegal, or threatened release of one or more hazardous substances. Spills involving exclusively petroleum products are not included in the database.

Figure 1. Number of Hazardous Substances Emergency Events by County



There were 1,256 hazardous substances emergency events in 1994 that met the case definition; 1,101 occurred at fixed facilities, and 155 were related to transportation. Figure 1 shows the distribution of these events by county. Four of the five counties with the highest numbers of reported spills are located on the Texas Gulf Coast. Approximately 83% of these events involved the release of one substance (Table 1). Releases from fixed facilities were more likely to involve more than one substance (18.4%) com-

Table 1. Distribution of the Number of Substances Released by Type of Event

	Type of Event								
	Fixed Facility			Transportation			All Events		
No. of Substances Released	No. of Events	(%)	No. of Substances	No. of Events	(%)	No. of Substances	No. of Events	(%)	No. of Substances
1	898	(81.6)	898	139	(89.7)	139	1,037	(82.6)	1,037
2	121	(11.0)	242	8	(5.2)	16	129	(10.3)	258
3	41	(3.7)	123	3	(1.9)	9	44	(3.5)	132
4	20	(1.8)	80	2	(1.3)	8	22	(1.8)	88
5	10	(0.9)	50	2	(1.3)	10	12	(1.0)	60
>5	11	(1.0)	89	1	(0.6)	13	12	(1.0)	102
Total	1,101		1,482	155		195	1,256		1,677

Table 2. Classification of Chemicals Released by Type of Event

	Type of Event					
	Fixed Facility		Transportation		All Events	
Chemical Category	No. of Substances	(%)	No. of Substances	(%)	No. of Substances	(%)
Acids	129	(8.7)	19	(9.7)	148	(8.8)
Amonia	52	(3.5)	4	(2.1)	56	(3.3)
Bases	69	(4.7)	8	(4.1)	77	(4.6)
Chlorine	25	(1.7)	2	(1.0)	27	(1.6)
Other inorganic substances	270	(18.2)	29	(14.9)	299	(17.8)
Paints and dyes	5	(0.3)	6	(3.1)	11	(0.7)
Pesticides	33	(2.2)	24	(12.3)	57	(3.4)
Polychlorinated biphenyls	40	(2.7)	6	(3.1)	46	(2.7)
Volatile organic compounds	493	(33.3)	21	(10.8)	514	(30.7)
Other	366	(24.7)	76	(39.0)	442	(26.4)
Total	1,482		195		1,677	

pared with those that were transportation related (10.3%). Of the 1,677 substances released, most involved spills of liquids and emissions of vapors. Table 2 shows the types of chemicals released by type of event. Volatile organic compounds were the most frequently released substances for all events. Sulfur dioxide was the most frequently indicated specific substance in these events.

The majority of spills (77.8%) occurred on weekdays; however, 283 (22.2%) events occurred on the weekend. Of the 1,201 events with information about time of occurrence, over one-half (65.6%) occurred between 6 a.m. and 6 p.m. with the fewest number of spills occurring between 12 a.m. and 6 a.m.

A total of 1,012 persons experienced injuries from emergency events detected with this surveillance system. Eighty (6.4%) of the 1,256 emergency events involved injuries. Compared with releases from fixed facilities (5.1%), transportation-related events (15.5%) were more likely to result in injuries. The greatest number of injuries, however, occurred from releases from fixed facilities. The general public was the group most frequently injured (75.7% of all victims) in both transportation-related (68.1%) and fixed facility (77.3%) events. Employees accounted for 19% of those injured. Responders accounted for approximately 6% of those injured. Of the 978 victims for whom information about gender was available, approximately one-half were males and one-half were. females. Ages of the victims ranged from 1 to 85 years of age with over one-half (54.8%) between the ages of 21 and 50 years of age. The median age of victims was 35 years.

Approximately 94% of all injuries occurred in four counties: Galveston (597), Dallas (145), Harris (127), and El Paso (76). An additional 25 counties also had persons injured from these events (1 to 9 victims each).

Table 3 shows type of injury by type of event. About one-third of injuries involved respiratory irritation (32.8%) followed by eye irritation (19.9%), headache (11.8%), and nausea (11.3%). These injuries were the most common for events related to both fixed facilities and transportation. Over one-half of victims were injured by exposure to ammonia. Events involving the release of chlorine, however, were the most likely to result in injuries.

Persons evacuated their homes or work places as a result of 82 (6.5%) emergency events. This action was more likely following transportation-related events than following events associated with fixed facilities. For ordered evacuations,

Table 3. Distribution of the Type of Injury by Type of Event

	Type of Event					
	Fixed Facility		Transportation		All Events	
Type of Injury	No. of Injuries	(%)	No. of Injuries	(%)	No. of Injuries	(%)
Chemical burns	11	(0.7)	5	(1.5)	16	(0.9)
Dizziness or other CNS*	68	(4.5)	14	(4.1)	82	(4.4)
Eye irritation	311	(20.5)	58	(17.1)	369	(19.9)
Headache	177	(11.7)	42	(12.4)	219	(11.8)
Nausea	165	(10.9)	44	(13.0)	209	(11.3)
Respiratory irritation	481	(31.7)	128	(37.8)	609	(32.8)
Skin irritation	103	(6.8)	18	(5.3)	121	(6.5)
Thermal burns	1	(0.1)	0	(0.0)	1	(0.1)
Trauma	4	(0.3)	13	(3.8)	17	(0.9)
Vomiting	81	(5.3)	10	(2.9)	91	(4.9)
Other	116	(7.6)	7	(2.1)	123	(6.6)
Total	1,518		339		1,857	

The number of injuries is greater than the number of victims, since a victim can have more than 1 injury.
*Central nervous system symptoms or signs

approximately one half (53.6%) were from buildings; 29% involved the circle or radius around the event; 16% involved evacuations downwind of the event; and 2% had no known criteria. Estimated numbers of persons who left their homes, schools, or places of business ranged from 2 to 5,200 with a median number of 20 persons per evacuation event.

Seven deaths occurred as the result of seven separate events. Six of the seven victims suffered from trauma. Six of the seven victims who died were males. Five of the seven deaths were associated with transportation-related events. Six of the seven persons who died were employees.

Another 25 persons were admitted to the hospital, and the majority (64.0%) of these victims were employees with the remainder (36.0%) from the general public. None of the responders who were injured sustained injuries serious enough to require hospitalization. Of the employees who were admitted to the hospital or died, over one-half (59.1%) were not wearing any form of personal protective equipment at the time of the incident.

In summary, the hazardous substances emergency events surveillance system provides information on the public health impact of hazardous substances emergency events in Texas. This information can help identify risk factors for injuries related to these events. In 1994 these events were more likely to occur along the Texas Gulf Coast and to be associated with fixed facilities. Events related to transportation, however, were more likely to result in injuries. The general public sustained the highest number of injuries; but, among the injured, employees were more likely to experience serious injuries that required hospitalization or resulted in death.

*Noncommunicable **Disease Epidemiology and Toxicology Division (512) 458-7269***

Health Risk Assessment of Toxic Substances

The Health Risk Assessment and Toxicology Program (HRAT) is a program in the Division of Non-communicable Disease Epidemiology and Toxicology at the Texas Department of Health (TDH). HRAT activities are funded by the State as well as by the federal Agency for Toxic Substance and Disease Registry (ATSDR). TDH has a cooperative agreement with ATSDR to conduct public health assessments and consultations that evaluate the potential public health impact of National Priorities List (NPL or "Superfund") hazardous waste sites and other environmental hazards.

The HRAT program also maintains records to provide information for the Environmental Protection Agency (EPA) and ATSDR to recover costs expended on National Priorities List sites. The following list indicates sites where TDH forwarded cost recovery reports in the 1994 calendar year:

Bailey Waste Disposal
Bio Ecology Systems
Crystal Chemical Company
French Limited
Koppers/Texarkana
Motco, Inc.
Odessa Chromium I
Odessa Chromium II
Sol Lynn/Industrial Transformers
South Cavalcade Street

A major focus for the HRAT in 1994 was completing health assessments for two new NPL sites in Texas:

RSR/Murph Metals NPL Site, also known as West Dallas Lead, is located in Dallas County. TDH staff participated in a multi-agency effort of local, state, and federal authorities to collect and evaluate information and to communicate with the public about the impact of lead contamination to West Dallas residents.

ALCOA (Point Comfort Operations)/Lavaca Bay NPL Site, located in Calhoun County, has the distinction of being the first NPL site that is primarily under water. TDH staff have participated with local citizens, the Environmental Protection Agency, State agencies, and management team members from ALCOA involved in creating a community advisory committee to address health concerns associated with mercury contamination at the site. Through this group, TDH has the means to address current and future health concerns of the Lavaca Bay community.

The following summary includes work performed at other sites in Texas by the Health Risk Assessment and Toxicology Program during 1994:

American Zinc - Dumas, Moore County
Met with citizens and prepared a health consultation for citizens who had used slag contaminated with lead, zinc, and arsenic as fill materials from this site.

Aztec Mercury - Alvin, Brazoria County
Reviewed a risk assessment for the site at the request of the Texas Natural Resource Conservation Commission (TNRCC).

Bailey Waste Disposal NPL Site - Bridge City, Orange County
Prepared a health consultation as a follow-up activity to determine whether public health may be affected by fish and crabs contaminated with heavy metals.

Best Plate - Hutchins, Dallas County
Prepared a health consultation to determine whether heavy metal contamination from metal plating processes poses a health threat to the surrounding population.

Big Spring (City of) - Howard County
Prepared a health consultation to answer questions regarding the effects of using well water contaminated with benzene, 1,2-dichlorethane, sodium chloride, sulfate, and manganese. Evaluated the potential health impact that would be associated with exposure of children and animals to contaminated soil and drinking water.

Brio NPL Site/Clear Creek contamination - Friendswood, Harris County
Completed a consultation regarding health and safety issues as well as a site review and update at this NPL site. HRAT staff continue to interact with concerned citizens as remedial actions for this site are revised.

Caddo Lake - Marion and Harrison Counties
Prepared a review of the Department's Division of Seafood Safety's risk for consumption of mercury-contaminated fish taken from Caddo Lake.

Chemical Recycling Incorporated - Wylie, Collin County
Prepared a health consultation for ATSDR Region 6 regarding volatile organic compounds and metals contamination at this site.

Col-Tex Refinery - Colorado City, Mitchell County
Prepared two health consultations for this site. The first evaluated exposure pathways for contamination from refining waste products at this site; the second evaluated whether eating fish from the nearby Colorado River would be a health threat.

Corpus Christi Refineries - Corpus Christi, Nueces County
Reviewed information related to soil, air, groundwater, and surface water contamination in neighborhoods near refineries. Developed an exposure assessment model and provided information to the TNRCC regarding clean-up levels for cadmium-contaminated soil. Completed a consultation evaluating the risk of eating zinc-contaminated oysters from Nueces Bay. HRAT staff are cooperating with the Division's Health Studies Program to conduct a survey regarding health and safety issues in the area.

Crystal City Airport NPL Site - Crystal City, Zavala County
Completed a site review and update to re-evaluate public health implications after completion of remedial activities by the U.S. Environmental Protection Agency (EPA).

French Limited NPL - Crosby, Harris County
Prepared health consultations regarding vinyl chloride contamination in water and polychlorinated biphenyl contamination in fish.

Harvey Industries State Superfund Site - Athens, Henderson County
Prepared a health consultation regarding metals and physical hazards at this site.

Highlands Acid Pits NPL Site - Houston, Harris County
Completed a site review and update to determine the public health status after remedial activities.

Hi-Yield Chemical Company State Superfund Site - Commerce, Hunt County
Prepared a consult for EPA regarding health-based soil screening values for arsenic. Conducted historical and vital records searches regarding a possible death related to arsenic poisoning. This site is being evaluated to be placed on the federal National Priorities List for Superfund cleanup.

Holly Street Power Plant - Austin, Travis County
Collected and reviewed information regarding electromagnetic fields, polychlorinated biphenyls, particulate air pollution, noise pollution, and threat of explosions. Prepared a health consultation.

JC Pennco State Superfund Site - San Antonio, Bexar County
Prepared a health consultation to assess health effects of soil contamination for property adjacent to this site.

LaMarque (City of) - Galveston County
Prepared a health consultation for a citizen regarding arsenic in soil.

Oak Meadow Elementary School - San Antonio, Bexar County
Evaluated the health implications of lead-contaminated soil.

Odessa Chromium II NPL Site - Odessa, Ector County
Consulted with TNRCC to evaluate health risks associated with exposure to groundwater contaminated with chromium (VI).

Besses Chemical NPL Site - Fort Worth, **Tarrant** County
Completed site review and update to assess public health implications of this site since completion of remedial activities.

Sheridan Disposal Services NPL Site - Hempstead, Waller County
Completed a site review and update to assess health implications of this site during remedial activities.

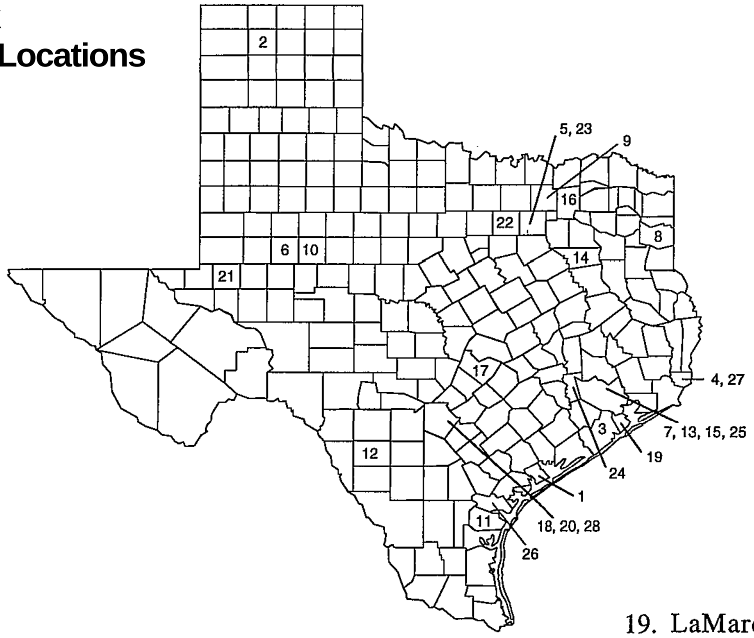
Sikes Disposal Pits NPL Site - Crosby, Harris
Incorporated the evaluation of well-water samples into a site review and update and provided participating community members results of water analyses.

Sinton (City of) - San **Patricio** County
Prepared a health consultation regarding benzene-contaminated residential well water; specifically reviewed risks associated with showering and dermal contact.

Triangle Chemical Company NPL Site - Bridge City, Orange County
Completed a site review and update to evaluate the public health impact of this site since its remediation.

Wendys Waterworks - Thelma, Bexar County
Completed a health consultation for the Commissioner of Health regarding this public water supply.

Figure 1. Health Risk Assessment Activity Locations



1. ALCOA
   Lavaca Bay, Calhoun
2. American Zinc
   Dumas, Moore
3. Aztec Mercury
   Alvin, Brazoria
4. Bailey Waste Disposal*
   Bridge City, Orange
5. Bestplate
   Hutchins, Dallas
6. Big Spring, Howard
7. Brio*/Clear Creek
   Friendswood, Harris
8. Caddo Lake, Marion/Harrison
9. Chemical Recycling, Inc
   Wylie, Collin
10. Col-Tex Refineries
    Colorado City, Mitchell
11. Corpus Christi Refineries
    Corpus Christi, Nueces
12. Crystal City Airport*
    Crystal City, Zavala
13. French Limited*
    Crosby, Harris
14. Harvey Industries
    Athens, Henderson
15. Highlands Acid Pits*
    Houston, Harris
16. Hi-Yield Chemical Co
    Commerce, Hunt
17. Holly Street Power Plant
    Austin, Travis
18. JC Pennco
    San Antonio, Bexar
19. LaMarque, Galveston
20. Oak Meadow Elementary
    San Antonio, Bexar
21. Odessa Chromium 11*
    Odessa, Ector
22. Pesses Chemical*
    Fort Worth, Tarrant
23. RSR/Murph Metals
    Dallas, Dallas
24. Sheridan Disposal*
    Hempstead, Waller
25. Sikes Disposal Pits*
    Crosby, Harris
26. Sinton, San Patricio
27. Triangle Chemical Co*
    Bridge City, Orange
28. Wendy's Water Works
    Thelma, Bexar

*National Priorities Listing Site

Noncommunicable Disease Epidemiology and Toxicology Division (512)458-7269

Hepatitis B - Cluster in Hernodialysis Patients, Houston

In May 1994 the Houston Health and Human Services Department requested assistance from the Texas Department of Health (TDH) and the Centers for Disease Control and Prevention (CDC) in investigating a reported cluster of hepatitis B seroconversions in chronic hemodialysis patients at a free-standing, privately-owned, hemodialysis facility (Dialysis Center A [DC-A]). This center opened on January 14, 1994, operating two shifts on a Monday/Wednesday/Friday schedule, with a staff of two nurses and eight technicians. Each technician cared for four patients per shift. Although all of the clinical staff had been vaccinated against hepatitis B, patients at the center were not routinely vaccinated.

Methods

A chart review of all patients served at DC-A since its opening was conducted during the investigation. A case-patient was defined as someone who had serologic evidence of acute HBV infection during April, May, or June, 1994. TDH and. CDC investigators observed DC-A staff perform routine tasks and dialysis procedures over the course of several days. At the conclusion of the observation period, investigators met with attending nephrologists, and center nurses to discuss disease prevention strategies.

Results

From January 26 through February 9, 1994, 36 patients received hemodialysis one or more times at DC-A. Four of these patients died due to causes unrelated to hepatitis B. Of the remaining 32 patients, 11 were immune to hepatitis B virus (HBV), 1 was a chronic hepatitis B surface antigen (HBsAg) carrier, and 20 were susceptible to hepatitis B infection upon entry to DC-A in January. The carrier patient was present from the day the clinic opened until mid-February 1994. Fourteen of the 20 patients (70%) met the case-patient definition (Figure 1). Although the patients had been screened monthly for HBsAg since DC-A opened, their serology results were not reviewed until April, at which time the first HBsAg seroconversion was noted.

Standard dialysis center infection control recommendations include setting aside an isolation area for HBsAg-positive patients. DC-A had a designated isolation room, but'it was not used initially because center staff were unaware that one of the patients was a chronic carrier. The fact that DC-A staff cared for everyone (including the carrier) simultaneously in the main room, increased the risk of cross-contamination.

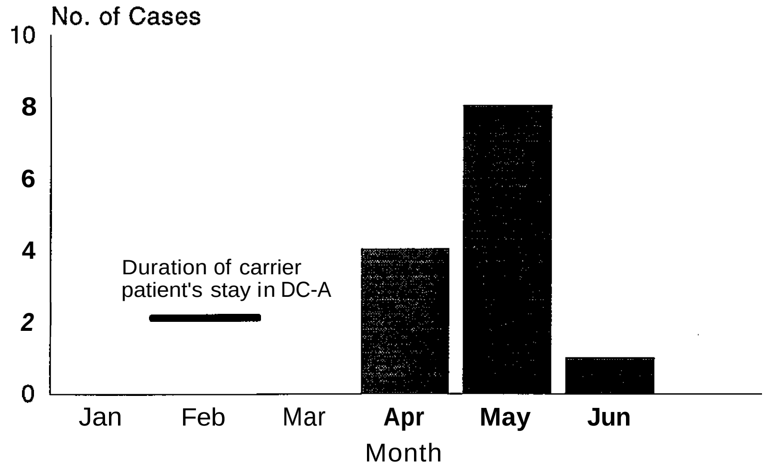
Numerous deficiencies in universal precautions, environmental infection control, and general procedures were observed at the center during the investigation. Some of the procedural inadequacies included frequent handling of equipment and supplies in the patient-care area by ungloved staff members, inconsistencies in handwashing practices, and failure of staff members to remove gloves and wash hands after contact with blood. In addition, the work area designated for laboratory procedures and patient testing was poorly designed, offering numerous opportunities for cross-contamination.

Once HBV-infected patients were identified, the center instituted standard isolation procedures and assigned these patients to the isolation room. By the conclusion of the investigation staff members were wearing proper barrier attire (eg, gloves, gowns, face shields), and they had begun to change their gloves and wash their hands frequently.

Discussion

Although the incidence of HBV infections in dialysis patients and staff has decreased significantly over the past 15 years, outbreaks still occur, usually due to failure to implement appropriate infection control guidelines. Such situations are easily prevented. Preventive measures include routine administration of hepatitis B vaccine to both staff and patients, use of a designated isolation area, and the assignment of dedicated staff to HBsAg carriers during a given shift. Factors that facilitated transmission in DC-A included the delayed review of serologic screening data, failure to implement isolation strategies, overlapping patient-care assignments by multiple staff members, failure to change gloves and follow basic universal precautions, and possible cross-contamination of common transmission vehicles (ie, medication vials, preparation area). In this outbreak, multiple incidents of cross-contamination from the unidentified HBV carrier probably resulted in transmission of HBV to susceptible patients over several shifts during a three-week period.

Figure 1. Number of Acute HBV Infections In Dialysis Center A: Houston, January to June 1994



Epidemiologists at the Houston Health and Human Services Department reported that another previously unvaccinated patient at DC-A seroconverted to HBsAg-positive status in December 1994, approximately six months after the outbreak. This patient may have been exposed to blood from one of the last patients identified during the outbreak (Figure 1), prior to the implementation of proper infection control procedures.

Infectious Disease Epidemiology and Surveillance Division (512)458-7676

Hepatitis B - Enhanced Surveillance Project, Dallas County

In February 1991 the Centers for Disease Control and Prevention (CDC) selected the Dallas County Health Department (DCHD) as the first site nationwide for the Enhanced Surveillance of Perinatal Hepatitis B Prevention Program (ESPHBPP). The Tarrant County Health Department (TCHD) also was initially selected but discontinued enrollment in ESPHBPP on April 1, 1993. Therefore, survey data collected through that date are from Dallas and Tarrant counties. Follow-up of all initially enrolled TCHD clients was completed under the ESPHBPP protocol.

Data collection for the ESPHBPP started April 1, 1992, and continues on an ongoing basis. The findings summarized in this report reflect the DCHD efforts during the first three years of operation. Data collected through the first six weeks of 1995 have been added to data gathered from 1992 through 1994.

To qualify as an enhanced surveillance site, at least 100 pregnant women who have tested positive on the hepatitis B surface antigen test (HBsAg) must be enrolled to receive program services at the site each year. The objectives of the ESPHBPP are to

- assess the effectiveness of public health agencies in screening pregnant women and administering hepatitis B vaccine to their infants, household contacts, and current sex partners
- identify factors associated with success and failure of at-risk infants, household contacts, and sex partners to complete the preventive vaccine treatment
- measure the overall effectiveness of public and private efforts to test pregnant women for hepatitis B
- estimate the imniunogenicity and efficacy of hepatitis B immune globulin and/or vaccine in infants born to HBsAg-positive women

Household Intervention: Methods

Project staff include Texas Department of Health (TDH) Immunization Division and DCHD employees. HBsAg-positive pregnant women are referred to the program by prenatal care providers, infant care providers, or sex partners. These women also may be identified through positive test results reported from labs or hospitals, refugee assistance programs, or self referrals. Not all HBsAg-positive women enroll in the study; some choose their private physicians for follow-up. For women who do participate in the study, the following data are collected in an initial interview: race, ethnicity, educational attainment, annual income, method of payment for medical care, risk factors that possibly contributed to their contracting hepatitis B, and barriers that would prevent them from seeking program services for their children.

In the initial interview, the women also are asked to identify their at-risk contacts (ie, household members, children with whom they maintain close contact, and sex partners) and to answer questions regarding anticipated risk factors for hepatitis B infection and barriers to vaccination. For the purposes of this program, a sex partner is any man the woman has had sex with in the past six months. The sex partner group includes persons younger than 17 years of age. Sexually active children in the household are classified as adult household contacts rather than as children. Clients of the ESPHBPP include the pregnant women, their children, and their other at-risk contacts.

Intensive client follow-up usually begins after the initial interview. Home visits and clinic appointments are scheduled for all times of day, including before and after traditional working hours. The following services are provided during these visits:

- Blood specimens for hepatitis B screening are drawn from the woman's at-risk contacts: any children who reside in the household or with whom they have close contact, their sex partners, and any other household contacts.
- Susceptible clients who have been identified as HBsAg-negative and anti-HBs-negative are given the appropriate dose of the 3-dose hepatitis B vaccination series.
- After completing the vaccination series, all infants undergo post-vaccine serological testing at 9 to 15 months of age to assess vaccine efficacy.

Follow-up after a missed visit or appointment includes a minimum of six telephone calls and at least one letter over a three-week period. Client treatment completion rates and vaccine efficacy are evaluated using CDC-supplied software called SURVEY.

Household Intervention: Results

From 1992 through 1994, the ESPHBPP Dallas site enrolled 406 HBsAg-positive pregnant women and 1,151 of their at-risk contacts (Figure 1). Forty-eight percent of all the clients in the program were born in countries other than the United States. The racial/ethnic distribution of the enrolled client population included: 41% black (non-Hispanic); 13% white (non-Hispanic); 11% Hispanic; and 35% Asian/Pacific Islander. Fifty percent of all Asian/Pacific Islander clients were of Vietnamese origin.

The overwhelming majority of the pregnant women who enrolled in the ESPHBPP between 1992 and 1994 had annual family incomes below or near the poverty level. Thirty-six percent claimed incomes of less than $5,000. In contrast, only 4% of the women reported family incomes of $40,000 per year or higher. Seventy percent of the pregnant women were enrolled in Medicaid. In 1992 approximately 95% of all program referrals were made by Parkland Memorial Hospital, the largest public sector hospital in the area.

Data related to educational attainment revealed that 33% of all pregnant women had completed high school, and 19% continued education past 12th grade. Of 207 enrolled sex partners, 68 (33%) completed 12 years of school, and 67 (32%) completed some college. A few adult clients reported no formal education.

Thirty-nine percent of interviewed clients mentioned language as a barrier to clinic immunization services. So that language barriers

Figure 1. Number of Clients Under Enhanced Perinatal Hepatitis B Surveillance: Dallas County, 1992-1994

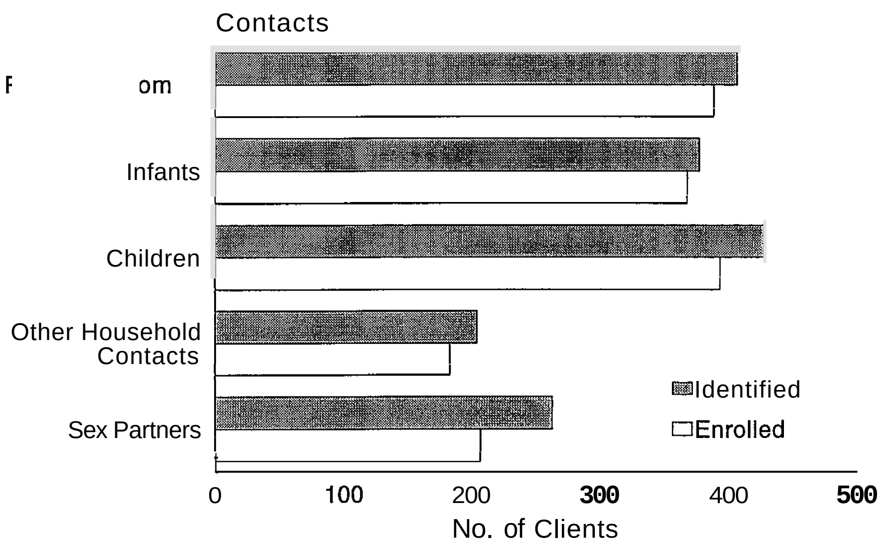


Table 1. Reported Risk/Exposure Factors - Enhanced Perinatal Hepatitis B Surveillance: Dallas County, 1992-1994

	Pregnant Women	Other Household Contacts	Sex Partner
Job Exposure	11	16	8
Transfusions	6	8	4
IV Drugs	8	4	5
Jail	10	21	32
STD	20	15	15
>1 Sex Partner*	17	N/A	N/A

'Question asked only of pregnant women

would not adversely affect data accuracy, the interview scripts were revised for lower literacy, and several translation services were used. These services included CDC translations of the exact text, trained translators, and bilingual1 multilingual health department employees.

Two of the risk factors pregnant women reported most frequently were a history of sexually transmitted disease and more than one sex partner. Incarceration in a correctional facility and history of sexually transmitted disease were the two most frequently reported risk factors for sex partners. The two most frequently reported risk factors for household contacts were incarceration and occupational exposure, eg, health care or public safety employment (Table 1).

Clients were asked if they had ever experienced symptoms of hepatitis B. Sixteen percent of the pregnant women reported jaundice. Only 5% of household contacts and 3% of sex partners reported hepatitis B symptoms.

Intensive follow-up activities contributed to the high completion rates for the treatment regimen of three hepatitis B vaccine doses prescribed for susceptible clients (Table 2). The completion rate for the 3-dose series of vaccine for infants enrolled

Table 2. Enrollment Summary - Household Contacts Enhanced Perinatal Hepatitis B Surveillance: Dallas County, 1992-1994

Summarv Catenorv	Infants < 1	Children 1-16	Other Household Contacts	Sex Partners
Enrolled	368	393	183	207
Previous Vaccine	NA	107	4	20
Screened	NA	334	182	207
Susceptible	NA	190*	110*	110*
Started Vaccine	373	225**	93**	105**
Received HEP B-1***	345	213	84	98
Completed Series	292	189	69	83
Completion Rate	85%	89%	82%	85%

* Negative on HBsAg and anti-HBs Test
** Some clients who were vaccinated were not screened.
*** Data collected from 411192-2/16/95

in the program was 85%. Results of post-vaccine serology testing of infants showed that 97% had acquired immunity. Early morning and after 5:00 pm home visits/clinic appointments were identified as significant factors in the completion rate for children (89%), household contacts (82%), and sex partners (85%) (Table 2). Adults from these groups were often the only working members of large extended families, and the nontraditional hours facilitated their use of follow-up services.

Hospital In-Patient Record Review

For every year from 1990 through 1992, ESPHBPP staff selected a weighted sample from birth records provided by the TDH Bureau of Vital Statistics. A sample of 800 records was randomly drawn from the following three groups: infants born in Dallas County to Dallas County residents; infants born in Dallas County to non-Dallas County residents; and infants born outside Dallas County to Dallas County residents. The sample was weighted to adequately represent race and ethnicity. Four evenly sized groups (200 records each) were chosen: white non-Hispanic, black non-Hispanic, Hispanic, and Asian/Pacific Islander.

Over the course of three years, the sample included births in over 40 hospitals in 12 counties. Project staff reviewed mother and infant in-patient hospital records to determine if the mother had been screened for hepatitis B during her pregnancy. If the hospital records failed to contain the needed information, attempts were made to locate the mother's prenatal records; many were found at hospital-based clinics. The purpose of the review was to assess screening practices of both public and private healthcare providers. By evaluating records for consecutive years, the ESPHBPP staff hoped to see an increase in the proportion of women screened.

Results of the medical record review of 1990 births showed that 55% of mothers sampled were screened for HBsAg, with a positivity rate of 0.6%. For 1991 births, 84% of mothers were screened (positivity rate: 0.9%). The review of 1992 births showed that 89% of mothers were tested (positivity rate: 0.6%).

Conclusion

Intensive client follow-up has contributed to the substantial increase in treatment completion rates within the at-risk population exposed to HBsAg-positive women. In 1992, 95% of clients were referred by Parkland Memorial Hospital, in contrast to only 50% in 1994 - proof that efforts to expand outreach activities were successful. Adapting project tools and materials toward populations with low literacy levels and providing foreign language services kept client attrition to a minimum. Finally, the hospital record review demonstrated steadily increasing rates of hepatitis B screening for pregnant women residing or giving birth in Dallas County during the period of 1990 through 1992. As a result, a statewide review of in-patient records at birthing hospitals is currently being coordinated in Texas.

Immunization Division (512) 458-7284

Viral Hepatitis Infections

Viral hepatitis is a collective term used to denote any of several viral diseases whose target organ is the liver. The major viruses in this category are hepatitis A virus (HAV), hepatitis B virus (HBV), hepatitis C virus (HCV), hepatitis D virus (HDV, also referred to as Delta agent), and hepatitis E virus (HEV). Of these five viruses, HAV, HBV, and HCV account for the majority of the reported hepatitis in Texas. Hepatitis D is reported infrequently, with most cases identified from one or two metropolitan areas in any given year. Although indigenous cases of hepatitis E have yet to be reported in the US, health professionals along the Texas/Mexico border are aware of the potential for sporadic cases to occur in their communities.

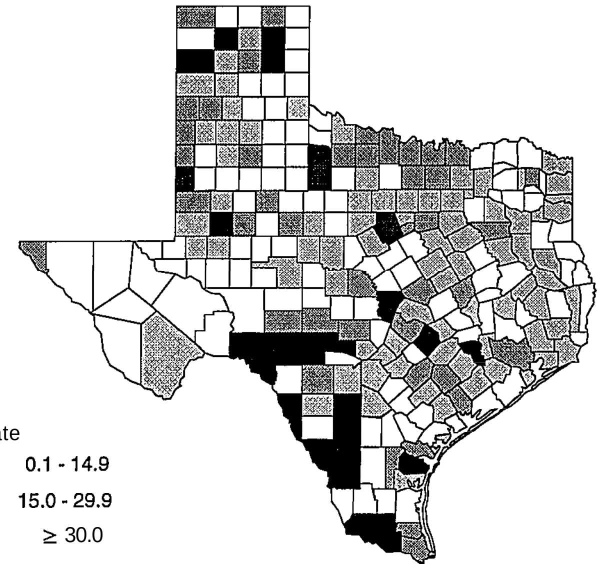
In 1994, 4,702 cases of viral hepatitis were reported in Texas. This figure represents a slight decrease from the 1993 total of 4,722 cases. The yearly totals include case reports for each of the four virus types present in this country (A through D) as well as those reported as "hepatitis non-A, non-B" (NANB) and "hepatitis, type unspecified." The latter category denotes cases identified primarily on a clinical basis. Hepatitis A and B account for 91% of the viral hepatitis cases reported in the state. Six of every 10 cases reported to the Texas Department of Health (TDH) were hepatitis A.

Table 1. The incidence and Demographics of Hepatitis A, 1993 and 1994.

	1994	1993
Case Total	2,877	2,798
Counties Reporting	150	111
Incidence Rate* Statewide	15.6	10.4
Incidence Rate* By Race/Ethnicity		
White	8.3	5.6
Hispanic	30.8	20.4
African American	6.0	4.0
Male/Female Ratio	1:1	1:1
Deaths	1	1
Case/Fatality Ratio	0.03%	0.04%

* Cases per 100,000 Population

Figure 1. Hepatitis A Incidence Rate per 100,000 Population by County

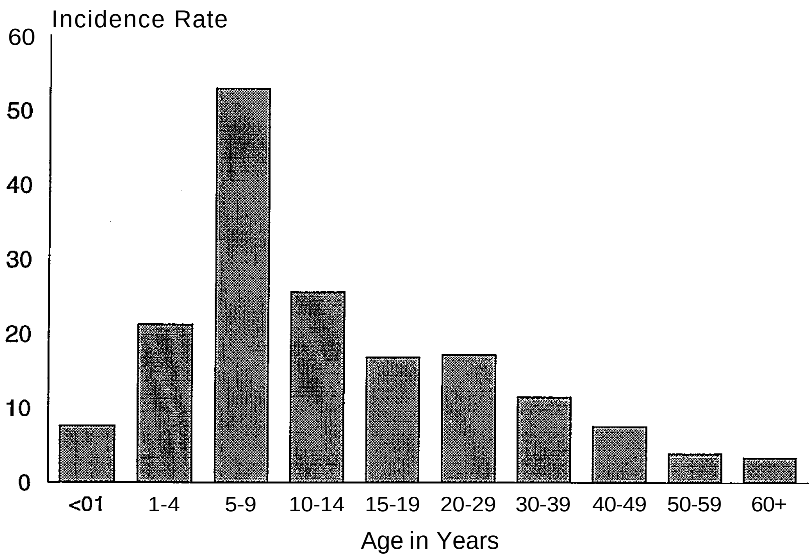


Hepatitis A

One of the most frequently reported diseases in Texas, hepatitis A is an acute, self limiting infection caused by HAV, an enteric virus concentrated in stool. Infection is acquired when a person ingests fecally-contaminated food or beverages or places fecally-contaminated objects (eg, fingers, cigarettes) in the mouth. Person-to-person spread is relatively common in families and day-care centers. Good personal hygiene, with an emphasis on handwashing, is the key to prevention.

Those most at risk for HAV infection are children. The percentage of the population susceptible to HAV infection is difficult to estimate, however, because many persons (especially young children) have asymptomatic infections. When present, signs and symptoms may include vomiting, diarrhea, malaise, right upper quadrant discomfort, loss of appetite, dark urine, and jaundice. Immunity following HAV infection is complete. Annual incidence rates for this

Figure 2. Reported Cases of Hepatitis A per 100,000 Population by Age Group



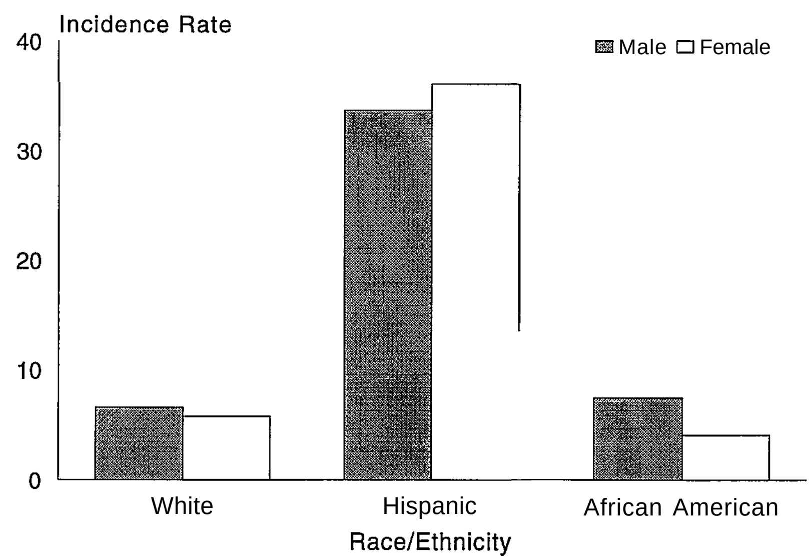
and other types of viral hepatitis are considered crude rates, with the denominator representing the total population rather than the total population minus those persons who are immune or are chronic carriers (as is the situation with hepatitis B and hepatitis C).

In 1994, there were 2,877 cases of hepatitis A reported from 150 counties, representing a small increase over the case total of 2,798 in 1993 (Table 1). Incidence rates by county are presented in Figure 1. Over 99% of reported hepatitis A cases were diagnosed serologically. There was only one death, with the immediate cause listed as cerebral edema due to hepatic failure secondary to hepatitis A.

The demographic patterns of disease incidence for hepatitis A have remained remarkably consistent over recent years (Figures 2 and 3). As in previous years, morbidity is concentrated disproportionately in the Hispanic population, which in 1994 accounted for 61% of cases reported statewide. Whites accounted for 23% of cases, and only 4% of cases were reported in African Americans. Although males and females generally were affected equally, attack rates differed with respect to age groups and race/ethnicity. Among whites, 45% of patients were 20 to 40 years of age; among Hispanics, only 21% were in this age range.

As in previous years, Hispanic children had the highest attack rate. Almost one-fifth (19%) of all patients were Hispanic children 5 to 9 years of age, and 49% of the patients in Texas were Hispanics younger than 20 years of age. These data suggest that Hispanics tend to acquire infection early in life. In comparison, the incidence of disease in whites is often delayed until young adulthood. Differences in socioeconomic status, association with groups of children, and quality of environmental health are all important factors in the spread of hepatitis A.

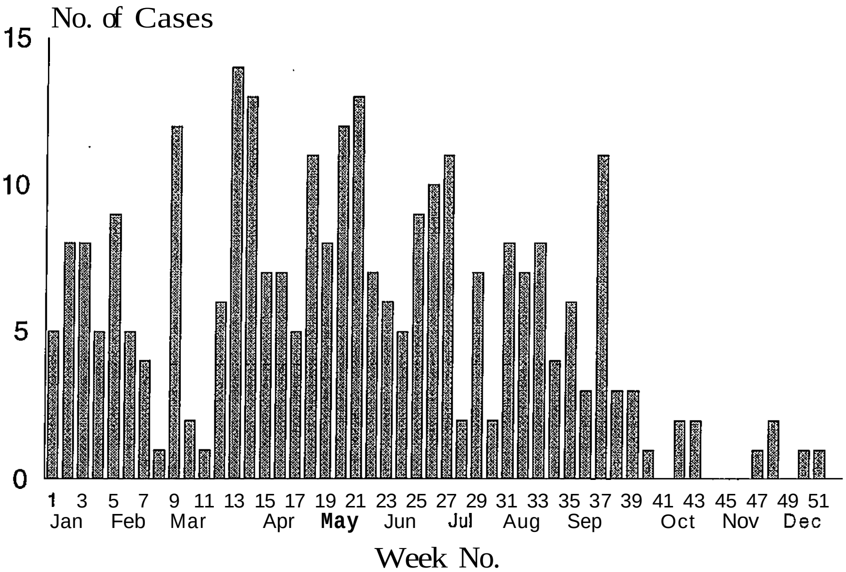
Figure 3. Reported Cases of Hepatitis A per 100,000 Population by Race/Ethnicity and Sex



Community-wide outbreaks of hepatitis **A** are the most difficult to detect and control. Factors that contribute to the difficulties encountered in managing this type of outbreak include

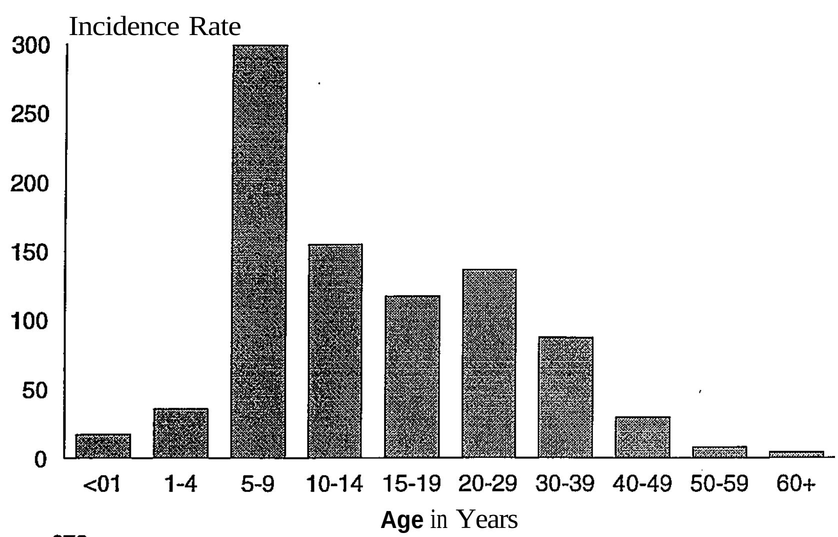
- insidious beginnings with asymptomatic or subclinical cases
- person-to-person spread through several cycles or waves of infection
- transmission among friends, neighbors, and family members (especially extended families)
- high attack rates in children under the age of 15 years, with the majority of symptomatic illness in those 5 to 9 years of age
- asymptomatic, subclinical, or unreported cases that perpetuate the outbreak from point source to more diffuse person-to-person means of transmission

Figure 4. Community-Wide Outbreak of Hepatitis A: Nueces County



The most notable community-wide outbreak in 1994 was a continuation of one that started in August 1993 in Nueces County (Figure 4). This outbreak continued for more than a year, with at least four waves of cases occurring in 1993 and eight to ten waves identified in 1994. There were 278 cases of hepatitis **A** in Nueces County in 1994, compared with 94 cases in 1993, for a two-year total of 372 cases. The 1994 countywide incidence rate of approximately 91 cases per 100,000 population exceeded the statewide rate of 15.7 by more than fivefold. Most cases were concentrated in three areas of the county: Robstown and two Corpus Christi neighborhoods.

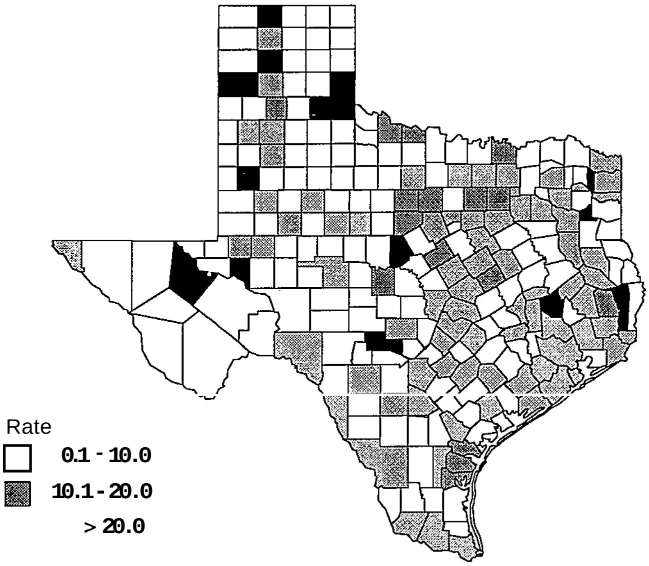
Figure 5. Reported Cases of Hepatitis A per 100,000 Population by Age Group: Nueces County



n=278
Countywide Rate = 90.7 Cases per 100,000 Population

Figure 5 depicts the age distribution of cases in Nueces County for 1994. Children 5 to 9 years of age had the highest incidence rate: 300 cases per 100,000 population. Of all patients, approximately one in four was a child. Fifty-five percent of patients were younger than 20 years of age.

Figure 6. Hepatitis B Incidence Rate per 100,000 Population by County



Several smaller communities reported clusters of hepatitis A cases that were largely the result of person-to-person spread. In Williamson County, a cluster of 21 cases began in 1993 and continued into the first three months of 1994. Thirteen of these patients were younger than 20 years of age. In Pampa (Gray County) 21 cases were reported during the first half of the year. Nineteen cases were reported from Dumas and Cactus in Moore County. In Cactus, seven of nine patients were members of four families. All but two of the Moore County patients were Hispanic. In Kerrville (Kerr County) there were 30 cases, again with evidence of spread among family members. Almost half of the hepatitis A patients in Kerrville were children younger than 10 years of age.

Controlling the spread of hepatitis A currently depends on timely prophylaxis of case contacts with immune globulin (IG). Efforts to control hepatitis A, however, were made even more difficult by a nationwide shortage of IG that began in the last half of 1994. Future efforts to minimize the impact of outbreaks will undoubtedly incorporate the use of the hepatitis A vaccine, licensed in February 1995.

Hepatitis B

Although hepatitis B is clinically indistinguishable from hepatitis A, HBV is found in the blood and in certain body fluids of infected persons (eg, semen, vaginal secretions, saliva). Transmission of the virus requires percutaneous or mucosal contact with these infectious fluids. Activities which facilitate HBV transmission include injection drug use with shared needles, sexual contact with multiple partners, person-to-person contact with an HBV-infected person, and occupational exposure to infectious blood or certain body fluids.

Although many people with newly acquired hepatitis B infections recover, some remain chronically infected and often develop severe liver disease such as cirrhosis, chronic active hepatitis, or even cancer. Alpha-interferon has been approved for the treatment of advanced

Table 2. The Incidence and Demographics of Hepatitis B, 1993 and 1994.

	1994	1993
Case Total	1,422	1,354
Counties Reporting	114	109
Incidence Rate* Statewide	7.8	7.5
Incidence Rate* By Race/Ethnicity		
White	5.6	5.1
Hispanic	5.0	5.0
African American	13.0	11.0
Male/Female Ratio	1.4:1	1.4:1
Deaths	2	6
Case/Fatality Ratio	0.1%	0.4%

* Cases per 100,000 Population

liver disease due to chronic hepatitis B and has been shown to be moderately successful.

A total of 1,422 cases of hepatitis B were reported to TDH from 114 counties in 1994. This number represents a 5% increase over the 1,354 cases reported in 1993 (Table 2). Figure 6 illustrates the incidence rates of hepatitis B by individual counties in Texas. More than 99% of the cases were reported on the basis of specific hepatitis B serologic test results.

Since hepatitis B is a blood- and body fluid-borne infection spread primarily through the high-risk behaviors and practices of adults and'adolescents, the distribution of cases by age, sex, and race/ethnicity is very different from that of hepatitis **A** (Figures 7 and 8). For all three racelethnic groups, hepatitis B occurs more frequently in males than in females. Generally, there are approximately three male patients for every two female patients. African Americans have the highest attack rates; their 1994 incidence rate (13.7/100,000) was almost three times that of either Hispanics (4.8) or whites (4.6).

Whereas the attack rates of hepatitis **A** are highest in young children, hepatitis B occurs mainly in adolescents and adults. The age group with the highest attack rate in each of the major racelethnic groups, adults 20 to 29 years of age, accounted for 28% of the cases. Overall, 7 of every 10 hepatitis B patients in Texas were adults 20 to 49 years old. The deaths of only two individuals, white males 44 and 46 years of age, were attributed to acute hepatitis B infection in 1994.

Figure 7. Reported Cases of Hepatitis B per 100,000 Population by Age Group

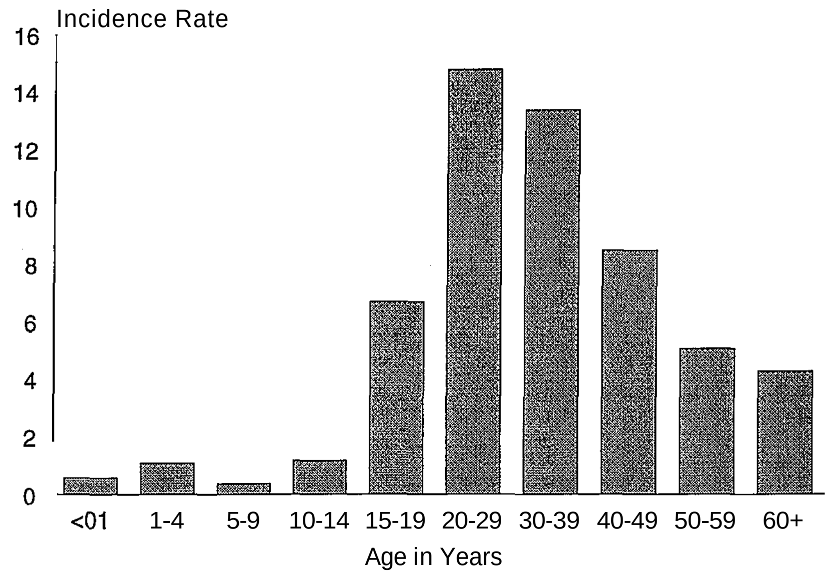


Figure 8. Reported Cases of Hepatitis B per 100,000 Population by Race/Ethnicity and Sex

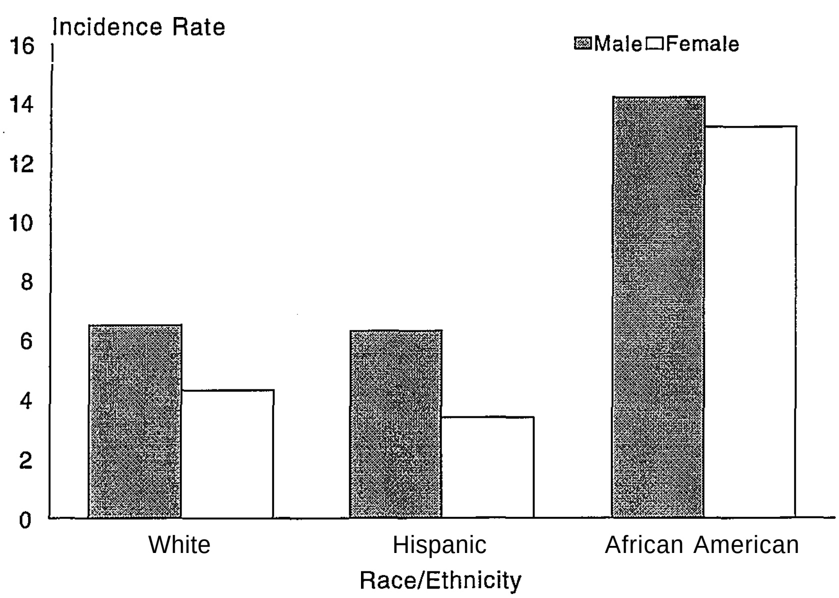


Table 3. The Incidence and Demographics of Hepatitis C, 1993 and 1994.

	1994	1993
Case Total	305	384
Counties Reporting	70	68
Incidence Rate* statewide	1.7	2.1
Incidence Rate* By Race/Ethnicity		
White	1.5	1.9
Hispanic	1.5	2.0
African-American	1.9	2.1
Male/Female Ratio	1.7:1	1.7:1
Deaths	1	1
Case/Fatality Ratio	.3%	.3%

"Cases per 100,000 Population

Hepatitis B vaccination is effective in preventing HBV infection and available to anyone who wishes to reduce the risk of becoming infected. Immunization against hepatitis B is especially recommended for individuals who

- have multiple sex partners
- use injectable drugs
- live in the same household as a hepatitis B carrier
- have occupational exposure to blood
- are newborn infants

For additional information on perinatal hepatitis B prevention, see Hepatitis B - Enhanced *Surveil-*lance Project, Dallas County in this publication.

Hepatitis C

From 1970 through 1990 hepatitis **C** was the predominant form of transfusion-transmitted hepatitis. Symptoms are similar to, but less severe than, those of hepatitis A and B. Asymptomatic infections are common. Fifty percent to 70% of acute infections become chronic and 20% of chronically infected patients develop cirrhosis, a major cause of death in this country. Alpha-interferon is currently used to treat chronic liver disease due to HCV infection. A laboratory test specific for hepatitis C antibody became commercially available in 1990. Since then, increasing numbers of liver disease patients have been screened to evaluate their candidacy for this intensive and costly form of treatment.

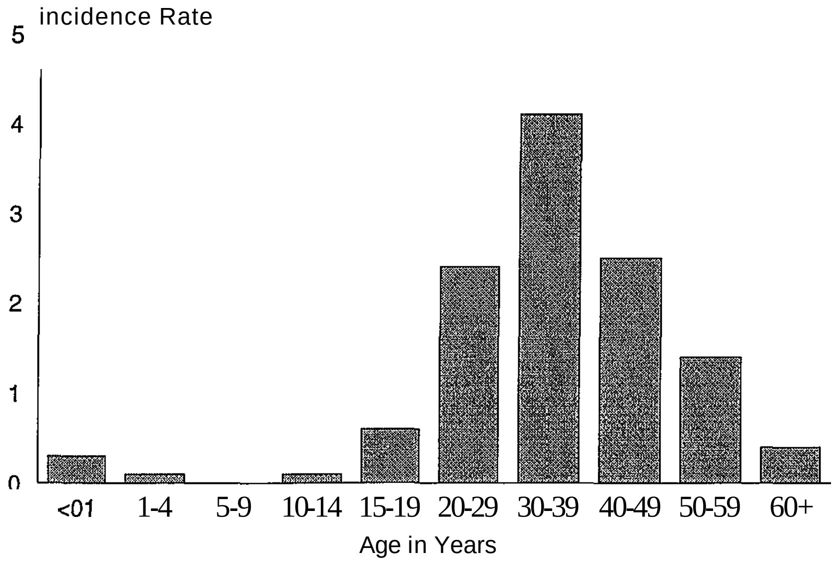
Serologic diagnosis of acute hepatitis C is difficult because the available laboratory test is incapable of distinguishing acute disease from chronic or previous infections. Of hepatitis C antibody-positive cases reported in 1993, up to 80% reflected nonreportable chronic conditions or past infections. At present, liver function profiles and clinical information must be evaluated to ascertain if anti-HCV-positive patients have acute hepatitis C. In the near future, however, patients with current infection will be more readily identified through widespread use of newly developed laboratory tests that measure the presence of HCV RNA. Although the HCV RNA tests do not distinguish between acute and chronic infections, they do provide information essential for clinical management of cases. In addition, tests to detect specific IgM antibodies may eventually become available.

In 1994, 305 hepatitis C cases were reported from 70 Texas counties (Table 3). This case-total reflects a 20% decrease from the 1993 total. More than 99% of the cases were reported on the basis of specific serologic test results. The death of one person, a 36-year-old male from Region 3, was attributed to acute hepatitis C infection.

Figures 9 and 10 show the distribution of cases by age, race/ethnicity, and sex. Approximately half of the patients were white (54%). Three of every 10 hepatitis C patients were white males. Only 12 patients were children or adolescents. One patient was younger than 1 year of age at the time of diagnosis; laboratory results for this patient revealed seroconversion from negative to positive. In each race/ethnic group, adults under the age of 45 years accounted for 8 of every 10 cases. Blood- and body-fluid exposures via high-risk behaviors such as injection drug use with shared needles place this group at highest risk.

Numerous antibody-positive cases were initially reported via programs that screened for hepatitis C antibody. Invariably, the individuals identified were asymptomatic but were being tested because they had elevated liver function test results or a history remarkable for high-risk behavior, or because hepatitis screening was required prior to blood or plasma donation. TDH did not document these infections as acute cases because they did not meet case definition criteria. The Centers for Disease Control and Prevention (CDC) also does not accept reports from blood banks or plasma centers.

Figure 9. Reported Cases of Hepatitis C per 100,000 Population by Age Group



From a surveillance standpoint, it is difficult to distinguish between acute and chronic cases of hepatitis C. The magnitude of this problem is highlighted by the results of a study conducted in Austin from 1993 through 1994. A chart review of hepatitis C cases reported to TDH from the Austin Department of Health and Human Services disclosed the following data. Of 240 initial reports received in 1994, 82% originated from the two largest hospitals in Austin. Medical records were not available for 44 (18%) of the initially reported cases. An additional 8 (4%)patients had no medical histories included in their charts. As expected, the majority of patients for whom there were records had multiple risk factors (Figure 11).

Figure 10. Reported Cases of Hepatitis C per 100,000 Population by Race/Ethnicity and Sex

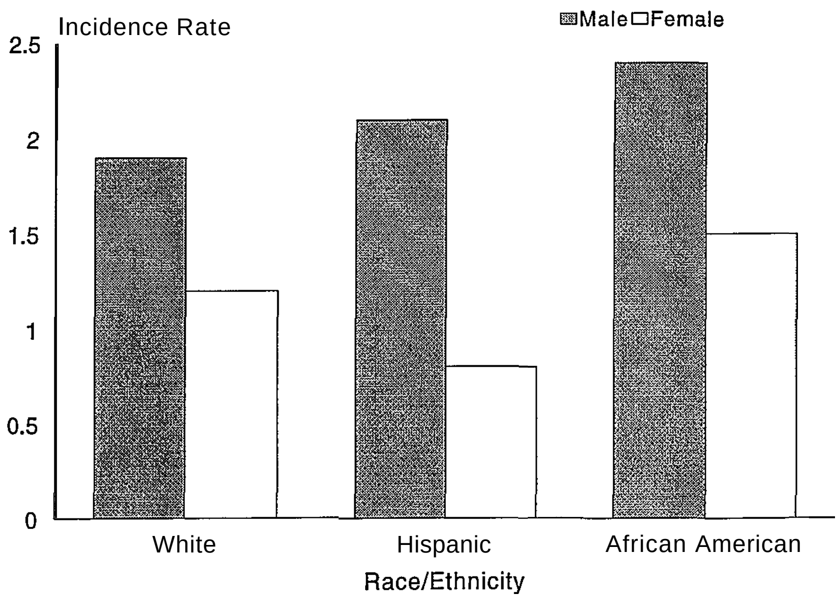
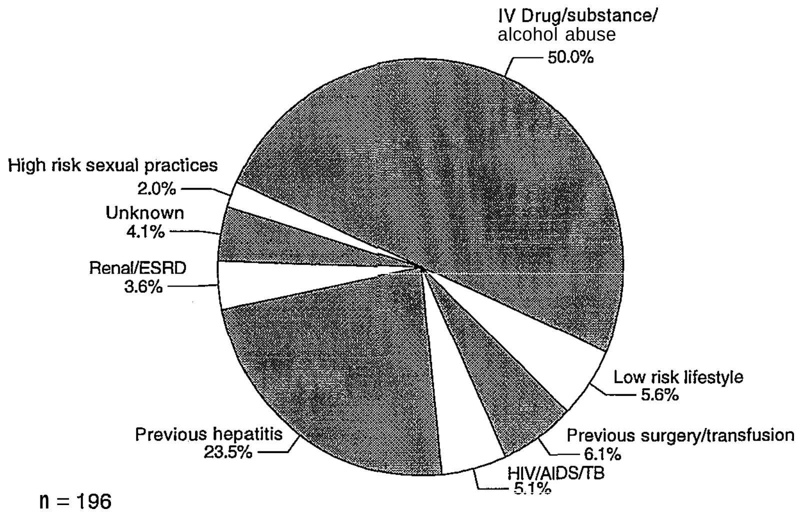


Figure 11. Principle Risk Factor of Anti-HCV Positive Patients, Travis County



Collectively, for 8 of 10 cases reported as anti-HCV positive, patients had high risk behaviors listed as principal risk factors linked to current illnesses, or they had histories of disease associated with high risk behavior. Fifty percent had histories of significant injection drug use, alcohol abuse, or other substance abuse. Almost one fourth of patient histories included previous hepatitis. Less than 6% of the medical histories reviewed indicated low-risk lifestyles.

Figure 12 depicts the admitting diagnosis for the 196 patients whose charts were reviewed. Less than 14% of patients had clinical presentations consistent with acute hepatitis. Approximately 63 patients (32%) were admitted for medical reasons unrelated to hepatitis, and 45 (71%) of these 63 had histories significant for high risk behaviors, prior surgery, or blood transfusion. Twenty additional patients (10%) were admitted because of drug or alcohol overdose. Forty patients (20%) already had clinical evidence of chronic hepatitis or disease of the biliary and pancreatic systems. For all chart review patients, hepatitis serology was done to

+ better assess a gastrointestinal disease condition OR
- evaluate the patient prior to surgical or other medical procedures OR
- follow-up an elevated liver function test.

The purpose of these efforts was to demonstrate the difficulty in distinguishing between incidence and prevalence. Until more specific serologic tests for hepatitis C are developed, distinguishing acute hepatitis C cases from previous HCV infections or chronic hepatitis C cases will remain a challenge.

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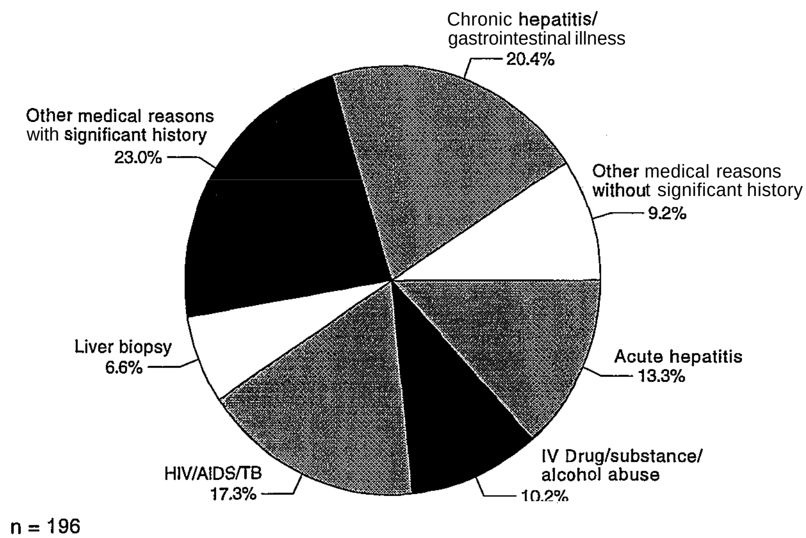
Figure 12. Reason for Hospitalization for Anti-HCV Positive Patients, Travis County



HIV/AIDS

Acquired immunodeficiency syndrome (AIDS) is a specific group of diseases or conditions that result from severe immunosuppression caused by infection with the human immunodeficiency virus (HIV). This virus specifically infects and depletes a subgroup of T-lymphocytes called helper T-cells. Laboratory analysis identifies these by typing specific cell-surface markers on the lymphocyte. The helper T-cells have identifying surface markers called CD4; the term CD4+ applies to lymphocytes that are positive for this marker by laboratory testing. The decline of CD4+ T-cells has proven to be a reliable indicator of HIV disease progression.

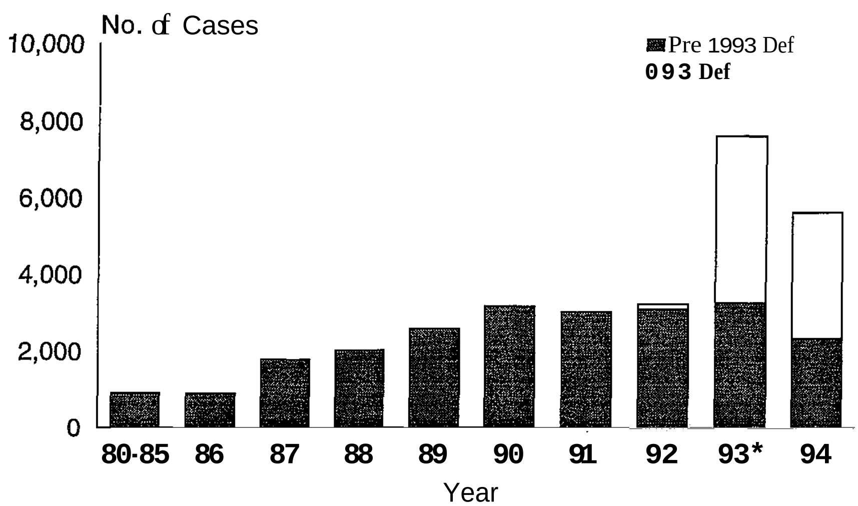
AIDS Case Definition

Texas ranked fourth in the United States in the number of AIDS cases reported (5,627) in 1994. The AIDS case surveillance definition has been modified and expanded over time to reflect the increased knowledge and improved technology related to the disease. The 1993 revised case definition for AIDS, along with other changes, included all HIV-infected persons with CD4+ T-cells fewer than 200 per microliter of blood or less than 14% of total lymphocytes. Prior to this change, the case definition relied primarily on the identification of one of several indicator diseases in HIV-infected patients.

The inclusion of the CD4+ criteria caused a marked increase in cases reported in 1993 (Figure 1). However, the apparent peak seen in 1993 and the lower number seen in 1994 should *not* be interpreted as a true decline in AIDS morbidity. Rather, the 1993 count was artificially inflated due to the tremendous number of cases added that year to the reporting system as a result of the new case definition. In large part, the 1993 increase reflects the reporting of cases involving persons with previously diagnosed HIV infection meeting this new criteria but not yet diagnosed with a condition meeting the pre-1993 definition. In addition, many of the cases reported in 1993 had been identified the previous year in anticipation of the revised definition.

Comparing the number of cases in 1994 reported under the pre-1993 definition with earlier years may also be misleading as an indicator of disease trends. Figure 1 shows that the number of cases reported in 1994 under the pre-1993 definition is lower than previous years. This decrease is an artifact of reporting methods and criteria rather than a decline in morbidity. Because the newer definition's criteria are more easily identified and documented, cases that meet both criteria may be more likely to be reported.

Figure 1. AIDS Cases by Year of Report, 1980-94
30,994 Cumulative Cases Reported through 12/31/94



'Expanded AIDS surveillance definition implemented

Trends

The long period of time from HIV infection to the development of AIDS precludes measuring trends in recent HIV infections based on AIDS cases. The AIDS cases diagnosed recently reflect HIV infections that may have occurred 8 to 10 years ago. The time lag from diagnosis to the reporting of an AIDS case often spans years; of the cases reported in 1994, 54% were diagnosed the same year, 32% were diagnosed in 1993, and 12% in earlier years of the epidemic. The overall rate in 1994 was 31 per 100,000 population. The fact that AIDS cases frequently span years influences how data are managed in the surveillance system. Unlike most other reportable diseases, the AIDS case data are continually reviewed and updated as more accurate information is found; this procedure applies to all cases, even those reported in previous years. As a result, the number of cases for a particular year may vary slightly as these corrections are made.

Table 1. AIDS Cases by Gender and Race Reported in 1992 and 1994

	1992		1994	
Sex/Race	**Cases**	**(%)**	**Cases**	**(%)**
Males				
White	1,818	55.8	2,786	49.5
African American	635	19.5	1,246	22.1
Hispanic	493	15.1	885	15.7
All Other	18	0.6	35	0.6
Females				
White	96	2.9	197	3.5
African American	147	4.5	349	6.2
Hispanic	51	1.6	127	2.3
All Other	1	<.1	2	<.1

Gender and Ethnicity

Because of the revised AIDS case definition, comparing rates or the number of cases reported in 1994 to previous years, especially 1993, would not indicate underlying trends. However, comparing the percent share of cases for different demographic groups and modes of exposure indicates that trends observed in recent years continue. Among demographic groups, the percentage of cases reported for white males declined from 55.8% in 1992 to 49.5% in 1994. African Americans had the largest increase in share of cases. For African American males, the percent share rose from 19.5% in 1992 to 22.1% in 1994. The percent share for African American females rose from 4.5% in 1992 to 6.2% in 1994 (Table 1).

One intent of the revised case definition was to adjust for possible bias that might cause underreporting of women with AIDS. Reported cases of AIDS have increased among females in 1994 with the percent share of cases rising to 12% from 9% in 1992. Although this increase for females is substantial, an even larger increase between these years might have been expected: 1992 was the year immediately prior to the definition changes intended to adjust for possible biases in reporting. However, the proposed changes were widely noted in 1992, and this awareness may have altered surveillance activities, thus increasing case finding for females in anticipation of the upcoming changes.

The AIDS case rate for females in 1994 was 7.3 per 100,000 population. The rate was significantly higher in the African American female population with a rate of 31.7. Hispanic females had a rate of 5.1, and white females a rate of 3.6. The 1994 AIDS rate for males was 55 per 100,000 population. The African American male population had the highest rate, 123, followed by white males at 53, and Hispanic males at 35 AIDS cases per 100,000 population.

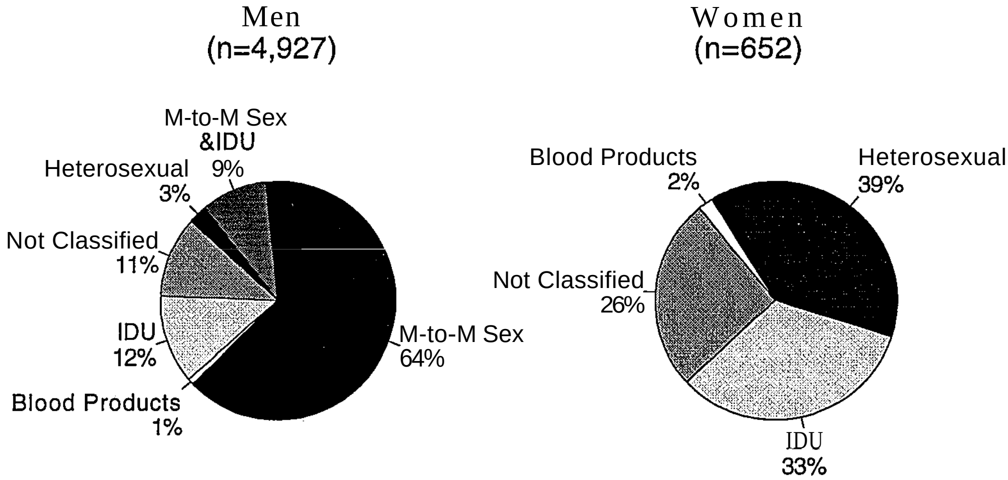
Modes of Exposure

The percent share of AIDS cases reported from male-to-male sex as the mode of exposure decreased due to more cases from other modes of exposure such as injecting drug use (IDU) and heterosexual sex. Male-to-male sex as a mode of exposure constituted a 64% share of cases in 1992, compared with 56% in 1994. Heterosexual sex as a mode of exposure had the greatest increase: from a share of 4.9% in 1992 to 7.3% in 1994. Exposure by injecting drug use increased from a share of 14.1% of AIDS cases in 1992 to 14.6% in 1994 (Table 2).

The profile of modes of exposure differs significantly between adult and adolescent men and women (Figure 2). The most frequent modes of exposure among females are heterosexual sex (39%) and IDU (33%). Among men the distribution differs, with male-to-male sex (64%) predominating. IDU (12%) was second, followed by the separate mode of exposure category of male-to-male sex *and* IDU (9%).

AIDS cases among young adults aged 20 to 24 years, who most likely became infected with HIV while still teenagers, share a strikingly similar profile in modes of exposure. Within this age group, 64% of male cases were attributed to male-to-male sex and 15% to IDU; 55% of female cases were due to heterosexual sex and 10% to IDU.

Figure 2. AIDS Cases, Mode of Exposure by Gender Cases Reported in 1994



Geographic Distribution

In 1994 the majority of AIDS cases in Texas were reported from urban areas. The largest number of cases was reported from Harris County (1,545), followed by Dallas County (1,241), Tarrant County (576), Bexar County (519), and Travis County (401). When AIDS case rates by county are ranked, the Travis County rate of 66 cases per 100,000 population was highest, followed by Dallas (62), Harris (51), Tarrant (44), Bexar (41), and Galveston counties (24). El Paso County, the fifth most populous county, ranks sixth in both number of reported cases (92) and case rate (14 per 100,000). Only 37 of the 254 counties in Texas have not yet had a reported AIDS case since

Table 2. AIDS Cases by Mode of Exposure Reported in 1992 and 1994

	1992		1994	
Mode of Exposure	**Cases**	**(%)**	**Cases**	**(%)**
Male-Male Sex	**2,071**	**63.5**	**3,163**	**56.2**
Injecting Drug Use(IDU)	**460**	**14.1**	**819**	**14.6**
Male-Male Sex and IDU	**302**	**9.3**	**421**	**7.5**
Hemophiliac	**15**	**0.5**	**20**	**0.4**
Heterosexual Contact	**161**	**4.9**	**411**	**7.3**
Transfusion	**46**	**1.4**	**41**	**0.7**
Risk Not Yet Identified*	**170**	**5.2**	**704**	**12.5**
Pediatric Exposure	**34**	**1.1**	**48**	**0.9**
Total Cases	**3,259**	**100.0**	**5,627**	**100.0**

The percent of cases in this category are higher in the more recent year since less time has elapsed to investigate and deternine mode of exposure for these cases.

the epidemic began in the early 1980s. AIDS continues to spread to less urban areas of the state and is no longer confined to specific groups or geographic regions. Public health strategies for prevention and channeling of resources must be tailored to meet these continuing changes.

HIV-2

HIV-2 is a virus related to and similar in structure to HIV-1. Infection with HIV-2, which also causes AIDS, is very rare in the United States, but relatively common in West Africa. Testing of blood products for HIV-1 antibodies began in 1985 in the United States. Although HIV-2 antibodies may cross react with HIV-1 in laboratory tests, new tests were developed to specifically detect HIV-2 antibodies. These new tests were implemented at blood donor test sites in 1992 to more fully protect the blood supply by testing for both HIV-1 and HIV-2. In the United States in 1994, two blood donors were identified as HIV-2 positive through routine testing at blood donor sites. One of these cases was the first confirmed HIV-2 infection in Texas and the Southwest. So far, 62 cases of HIV-2 infection have been identified in the US, primarily on the East Coast.

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Influenza Virus Surveillance

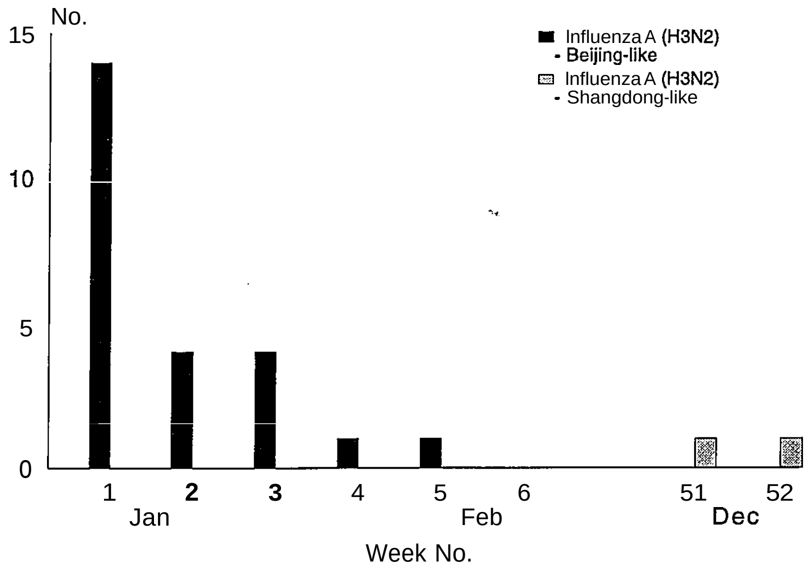
In temperate climates during the late fall, winter, and early spring, infections due to type A or type B viruses account for significant levels of severe morbidity marked by high fever, upper respiratory symptoms, and chills. These infections are clinically indistinguishable on the basis of signs and symptoms. Influenza C virus infections, on the other hand, are usually subclinical.

Influenza viruses exhibit significant variability over time because they are able to alter the antigenic properties of key surface proteins in response to increasing levels of immunity in the host population. Minor antigenic variations, known as "antigenic drift," result in new viral strains or variants. Influenza A viruses can also undergo such dramatic changes that new virus subtypes emerge. These abrupt, significant variations are referred to as "antigenic shift."

Virus isolation from clinical specimens remains the definitive procedure for laboratory identification of influenza viruses. This procedure has been used successfully for several years as part of a surveillance network to characterize the epidemiology of each influenza season. Two centers conduct active, laboratory-based influenza virus surveillance: the Texas Department of Health (TDH) in Austin and the Influenza Research Center (IRC) at the Baylor College of Medicine in Houston. As in previous years, TDH-based influenza virus surveillance is conducted in many of the major cities around the state, while the IRC program conducts intensive surveillance in the Houston area.

Figure 1 shows the profile of influenza virus isolates recovered by TDH during the final weeks of the 1993-94 influenza A season and the first few weeks of the 1994-95 season. Figure 2 shows the profile of influenza virus isolates recovered during 1994 by IRC. A burst of influenza virus activity began in Central Texas in November 1993 and spread quickly throughout the state. Austin/Travis County and Houston/Harris County both sustained short but intense periods of influenza A (H3N2) virus activity almost immediately. Following the peak of that season, which occurred in December 1993, influenza A (H3N2) virus circulation declined rapidly; the season was over by the first half of February 1994.

Figure 1. Influenza Virus Isolates Recovered by TDH-based Statewide Surveillance, by Week of Specimen Collection



The second half of the 1993-94 influenza season in Texas was dominated by a single virus, influenza A/Beijing/32/92(H3N2). Only 104 viruses were isolated statewide in the first quarter of 1994. IRC recovered 80 influenza A viruses, while TDH identified the remaining 24 isolates in specimens submitted from eight counties: Brazos, Cameron, Dallas, El Paso, Lubbock, Nueces, Potter, and Randall. It is of interest that no additional influenza viruses were identified after the first of January 1994 in Travis County.

Figure 2. Influenza Virus Isolates Recovered by the Influenza Research Center, Harris County, by Week of Collection

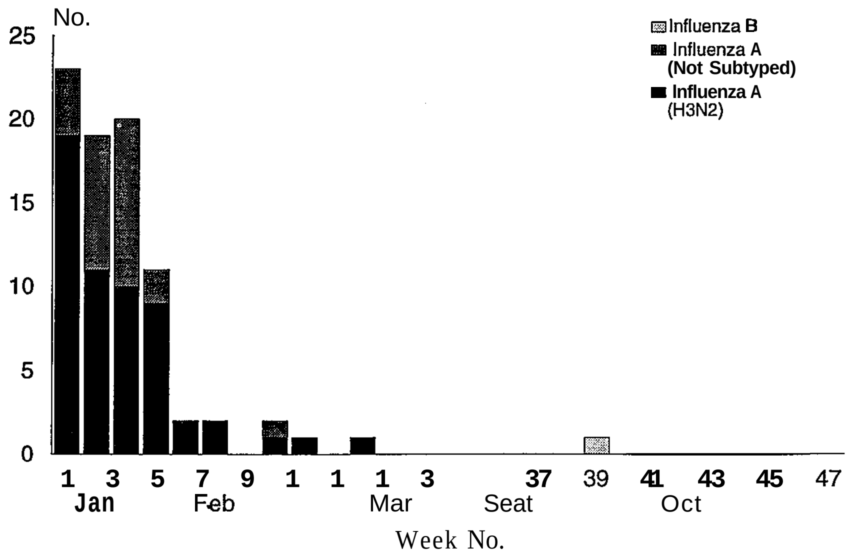


Figure 3 shows the age distribution of patients with culture-confirmed influenza A during the second half of the 1993-94 season. When influenza A seasons occur, especially those dominated by H3N2 viruses, the distribution of cases by age group is usually diffuse. Children, however, sustain higher levels of morbidity and spread the illness to the rest of the community. Approximately two-thirds (64%) of the culture-confirmed specimens processed at IRC were from patients younger than 15 years of age. Of note is the fact that virus activity increased five-fold among Houston children younger than one year of age during the second half of the season. In November and December 1993, this group accounted for only 2.5% of the positive cultures, whereas in 1994 this figure was 11.2%. TDH-based statewide surveillance showed that older adolescents and adults in their twenties accounted for approximately 30% of the culture-confirmed cases during the first half of the 1993-94 season. This proportion rose to 42% during January and February 1994, but this increase may be due to the small number of positive specimens rather than a true shift in age-related morbidity.

The 1994-95 influenza season was atypical by all considerations (Figures 1 and 2). The season began uncharacteristically late, with only two influenza A/Shangdong/09/93 viruses recovered in Austin in December by the TDH Laboratory. Ironically, the two culture-confirmed cases were in Collin County residents visiting family in Austin. IRC did not identify any influenza viruses during the last three months of 1994; it did recover a "pre-season" influenza B/Qingdoa virus in late September (Figure 2).

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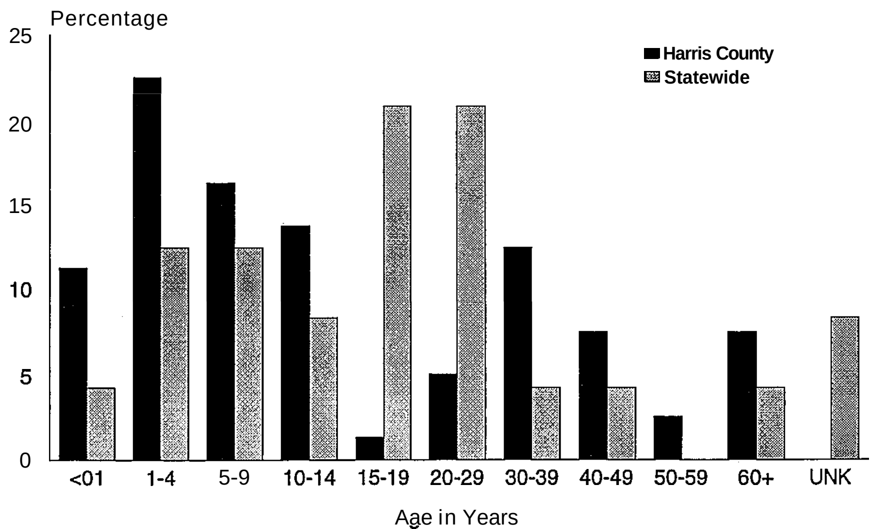
Figure 3. Age Distribution of Patients with Confirmed Influenza A: Harris County and TDH Surveillance Compared



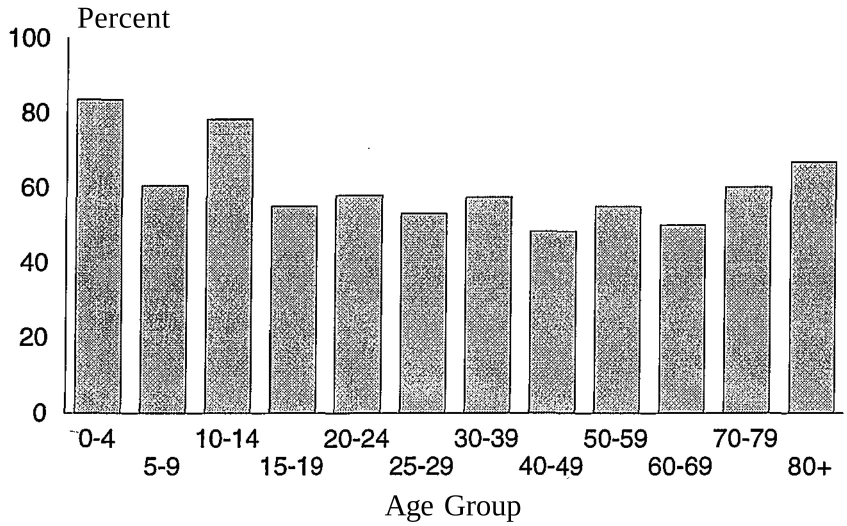
n=80, Harris County n=24, Statewide

Bicycle-Related Head Injury Mortality, 1988-1993

Of an estimated six million Texans who ride bicycles annually, nearly one million are children between the ages of 5 and 14. Only 5% of these children wear helmets. From 1988 through 1993, 351 Texans (more than one per week) died riding bicycles.

Accounting for 89% (3141351) of the bicycle-related deaths, males were 8.7 times more likely than females to sustain bicycle-related fatalities (95% CI 6.14, 12.48; p<0.0001). Fatality rates for whites, Hispanics, and African Americans were 2.9, 4.3, and 3.5 per million, respectively. The bicycle-related mortality rate for Hispanics was 1.5 times (95% CI 1.15, 1.84; p=0.0013) higher than the rate for whites and 1.2 times (95% CI 0.85, 1.76; p=0.2621) higher than the rate for African Americans.

Figure 1. Percent of Bicycle-Related Fatalities with Associated Head Injuries by Five/Ten-Year Age Groups, 1988-1993



n = 209 (of 343 bicycle-related fatalities)

Three hundred forty-three bicycle-related fatalities were reviewed for associated head injuries. Eight additional fatalities were identified later but were excluded from further analysis because data on associated head injury were unavailable at the time. Sixty-one percent (2091343) of those who sustained fatal bicycle-related injuries also sustained head injuries. Figure 1 shows that children aged 0 to 4 years and 10 to 14 years sustained high percentages of head injury in fatal bicycle mishaps (83% and 78%, respectively). The bicycle-related head-injury death rate for males (3.63/million) was 7.9 times (95% CI 5.10, 12.44; p<0.0001) that for females (0.461 million), with males aged 10 to 14 having the highest rate (11.99/million) (Figure 2).

To ascertain the incidence and risk factors for bicycle-related head injury mortality in Texas and to demonstrate the need for targeted intervention programs, Texas Department of Health (TDH) Injury Prevention and Control Program (IPCP) staff conducted a retrospective study of bicycle-related deaths among Texas residents from 1988 through 1993. TDH Bureau of Vital Statistics tapes documenting underlying and multiple cause of death were used to identify deaths with bicycle-related E-Codes and selected head injury codes (N-Codes). (See glossary for code definitions.) For the purpose of this study, a death was defined as bicycle-related when it was coded as resulting from a bicycle crash. Epigram population data for 1988 through 1993 were used to derive age, race, and gender-specific rates.'

The Centers for Disease Control and Prevention (CDC) has awarded the TDH IPCP a grant that funds bicycle helmet promotion targeting Hispanics and males aged 10 to 14 years - two groups that the IPCP study found to be at significantly high risk of sustaining fatal bicycle-related head injuries. This grant funds a statewide bicycle helmet distribution and education program in addition to three community bicycle helmet distribution and education projects (in Austin, Houston, and San Antonio). It allows Texas to take a leadership role in advocating helmet use for bicycle riders of all ages. The program and its interventions will be evaluated through observational surveys of bicycle helmet use in the three project cities and in three matched control cities. Bicycle-related mortality is expected to decrease in the project cities.

Reference

1. Goldman, DA. The EPIGRAM computer program for analyzing mortality and population data sets. Public Health Reports 109:118-124, January-February 1994.

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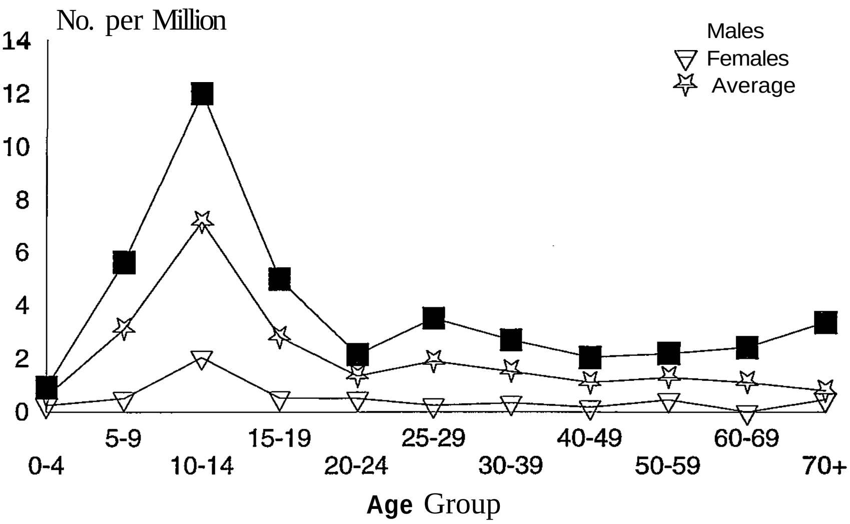
Figure 2. Bicycle-Related Head Injury Fatalities per Million Population, 1988-1993

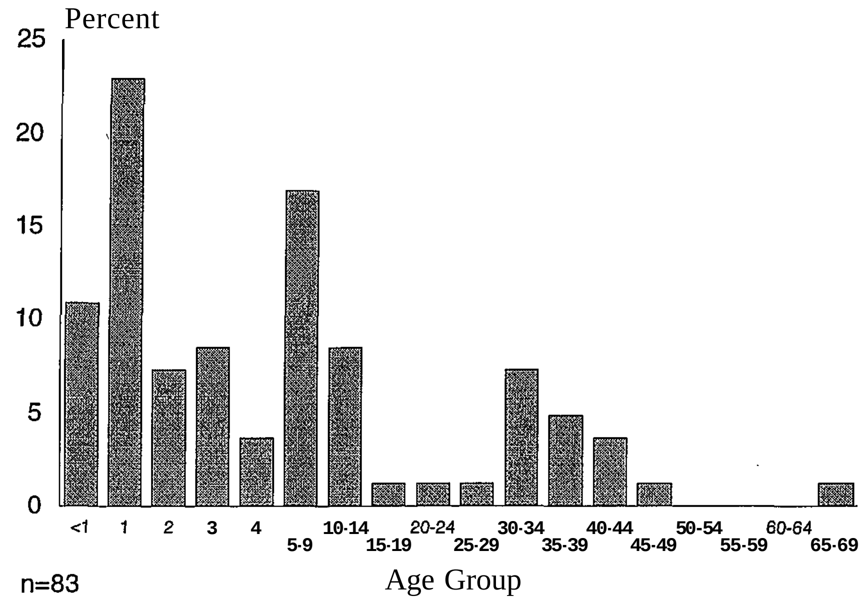


n = 209 (of 343 bicycle-related fatalities)

Drowning/Near Drowning

Drowning is defined as death within 24 hours of suffocation due to submersion in water, and near-drowning is defined as survival for at least 24 hours after suffocation due to submersion in water. Since 1980, drowning was recorded as the cause of death on 6,672 death certificates. Among children younger than age five, drowning is the second leading cause of unintentional injury; among those aged 5 through 44, it is the fifth leading cause. Drowning is the sixth leading cause of unintentional injury death for Texans of all ages.

Figure 1. Proportion of Drowning/Near-Drowning Reports



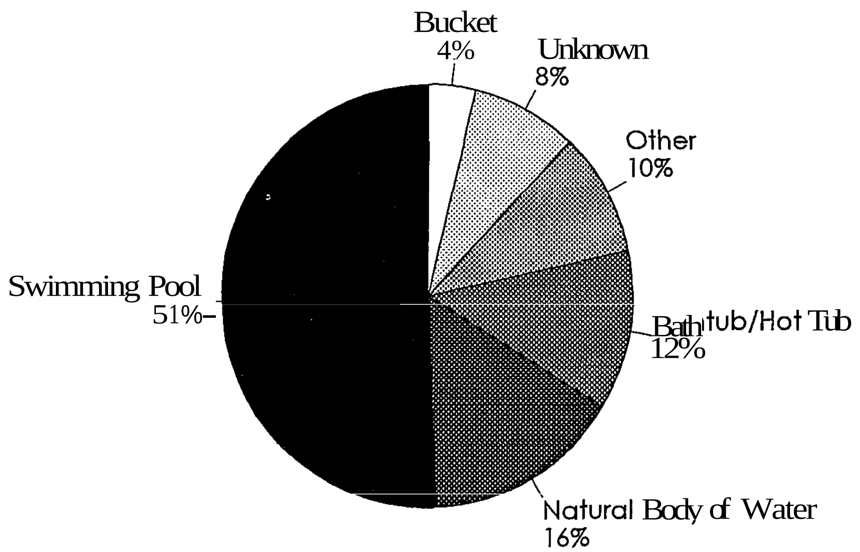
In addition to the devastation caused by drownings, many more individuals suffer extreme, permanent cognitive and/or motor disability resulting from a near-drowning incident. Families and friends share the tremendous, life-long emotional and financial burden of near-drownings. These injuries also place a heavy financial burden on the health care system. According to *The* Injury Fact Book by Baker, et al (1992), for each person who drowns, approximately 4 to 8 others survive a near-drowning incident. For children, this relationship is more pronounced: for each child who drowns, 18 others survive a near-drowning. (Four are admitted to hospitals, and 14 are treated in emergency rooms.)

A law enacted in January 1994 has made the reporting of circumstances surrounding submersion injuries involving Texans mandatory. During the first year of mandatory reporting, 83 submersion injuries were reported to the Injury Prevention and Control Program. According to these data, for each person who drowned, three others suffered a near-drowning. Among those under five years of age, the ratio was 1 drowning to 7 near-drownings; and among those aged 5 through 9 years, the ratio was 1 drowning to 6 near-drownings. It is interesting to note that for those older than 15 years of age, more persons drowned than suffered a near-drowning. While reporting near drownings is mandatory, these data likely represent an under count of the true incidence of near-drownings in Texas.

Figure 1 illustrates percentages of drowningsl near drownings by age group. Victim ages ranged from 6 months to 68 years. The average age was 11 years. One-year-olds were most often injured (23% of total). Fifty percent of those injured were under 4 years of age.

Fifty-one percent of submersion injuries occurred in swimming pools (most often at the victim's private residence) (Figure 2). Eighty percent of children were unsupervised at the time of injury. Activity preceding submersion injuries is graphically represented in Figure 3. Ten percent of those injured had pre-existing medical conditions or physical impairments (ie, seizure disorder, cerebral palsy, mental retardation, autism, coronary artery disease).

Figure 2. Drowning/Near-Drowning



n=83

Cardiopulmonary resuscitation was performed at the injury scene by nonprofessionals (ie, bystanders/rescuers) in 49% of incidents. Eighty-two percent of the persons were treated in the hospital following submersion.

The Injury Prevention and Control Program is working closely with local and regional health departments to improve submersion injury reporting throughout the state. As reporting improves, a more complete picture of the submersion injury problem in Texas will emerge. Knowledge of the risk factors identified so far (ie, unsupervised children in or near water and lack of pool fences with gates) allows steps to be taken to prevent many drownings and near-drownings.

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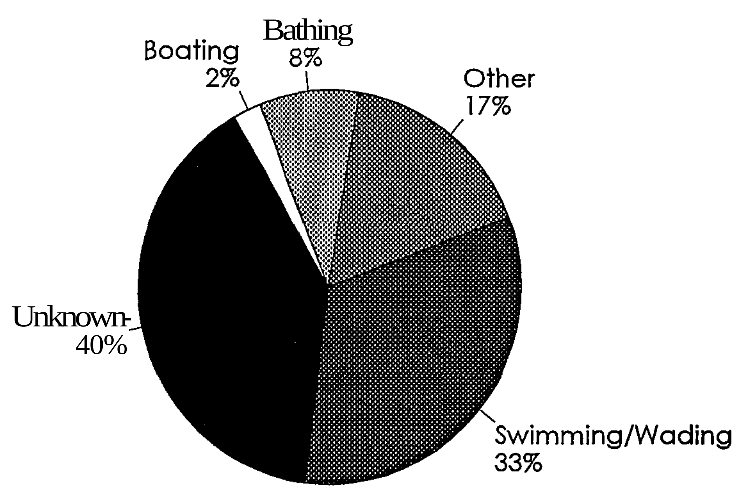
At least 12% of injuries involved alcohol or drug use. Fifty-seven percent of drugs used were by prescription. Three victims in this category were children, taking prescription drugs for treatment of cerebral palsy, autism, or attention deficit disorder. Cocaine was the only non-prescription drug reported used. Alcohol/drug involvement was unknown/undetermined for an additional 25% of the injuries.

Twenty-five percent of those suffering submersion injuries drowned. At least 13% of persons who suffered a near-drowning, eventually died from submersion-related complications. Of those surviving a near-drowning, at least 22% suffered some manner of neurologic deficit, and an additional five percent of near-drowning survivors had unknown or undetermined deficits. At least 67% of deficits were severe, and an additional 20% of known deficits had unknown or undetermined severity.

Figure 3. Activity Preceding Drowning/Near-Drowning

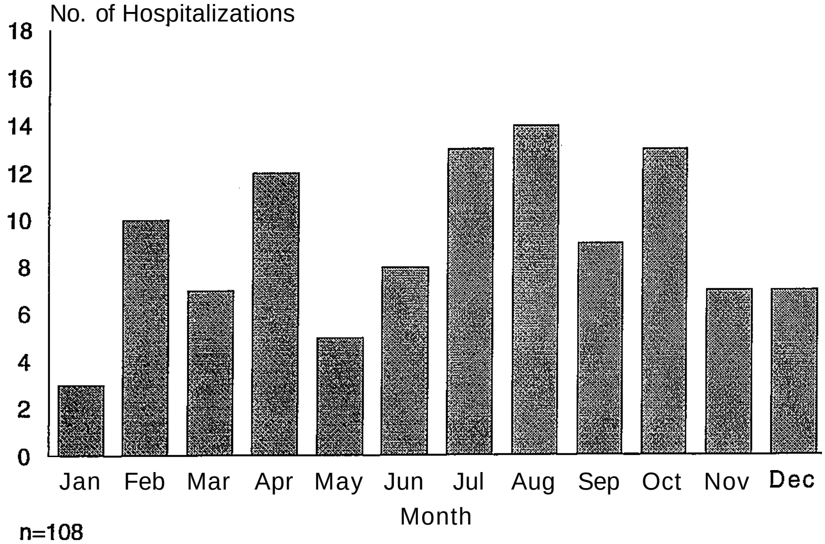


n=83

Firearm-Related Hospitalizations in One Texas Community

In Texas, firearms continue to surpass motor vehicles as the leading cause of injury death. In 1993 there were 3,456 firearm-related deaths, compared with 3,184 motor vehicle-related fatalities. In 1993, 38% of all the deaths to Texans 15 to 19 years of age were related to gunfire.

Figure 1. Firearm-Related Hospitalizations by Month: Travis County Residents, 1993



The appalling toll of suffering, injury, and death caused by firearms underlines the need for more research in the area of firearm-related injuries. Better understanding of the epidemiology of the mortality and morbidity associated with firearms is required for effective prevention strategies to be developed. Furthermore, interdisciplinary collaboration between public health and criminal justice researchers is needed to further our fundamental understanding of this issue:.

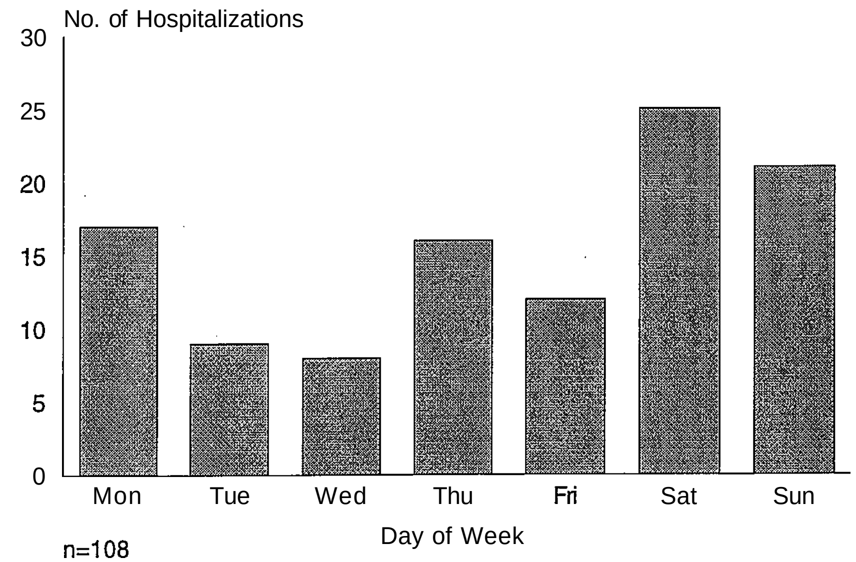
This report describes a multidisciplinary approach by which public health/medical professionals and law enforcement officials collected and analyzed population-based epidemiologic data on firearm-related hospitalizations in one Texas community. Medical and financial information on firearm-related deaths and hospitalizations were collected and linked with police reports to obtain data about the circumstances of the gunfire. Plans are underway to continue the study using 1994 data.

Methods

A retrospective review was conducted of all firearm-related hospitalizations occurring in Travis County from January 1 through December 31, 1993. Travis County is located in Central Texas and has a population of 576,407.

Medical record information on all persons hospitalized for treatment of firearm injuries at Brackenridge Hospital in Austin during 1993 were reviewed. Brackenridge Hospital is the regional trauma center in Central

Figure 2. Firearm-Related Hospitalizations by Day: Travis County Residents, 1993



Texas. Individuals treated for firearm-related injuries in the emergency room without being admitted were not studied. Information abstracted from the medical record included patient name, race, sex, age, date and time of admission, date of discharge, discharge status, county of residency, and anatomic location of gunshot wound. Hospital financial charge data (excluding physician fees) and payment source were also collected.

Information on firearm-related hospitalizations were then linked by victim/patient name with local law enforcement records. Upon linkage, code numbers were assigned and names destroyed. Reports from the Austin Police Department were reviewed to collect information on the circumstances surrounding the gunfire. This information included date and time of the shooting, weapon type, victim-offender relationship, place of occurrence, intentionality, and other factors related to the shooting.

Figure 3. Firearm-Related Length of Hospital Stay: Travis County Residents, 1993

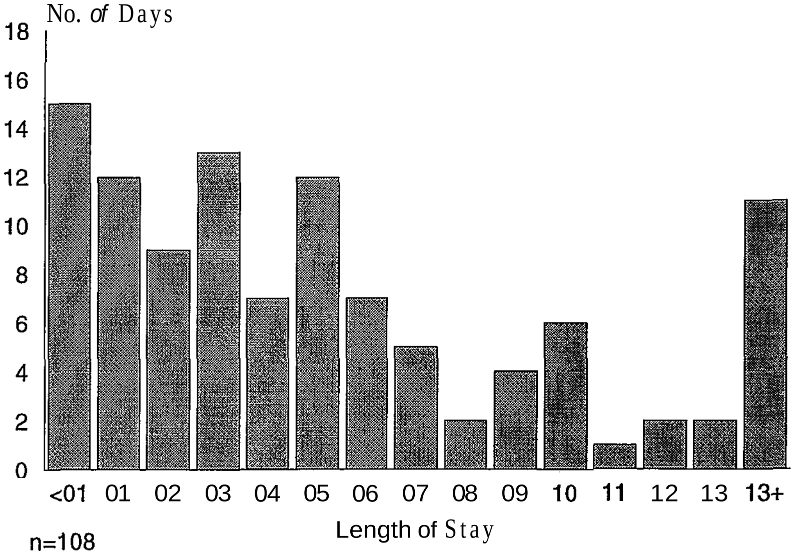
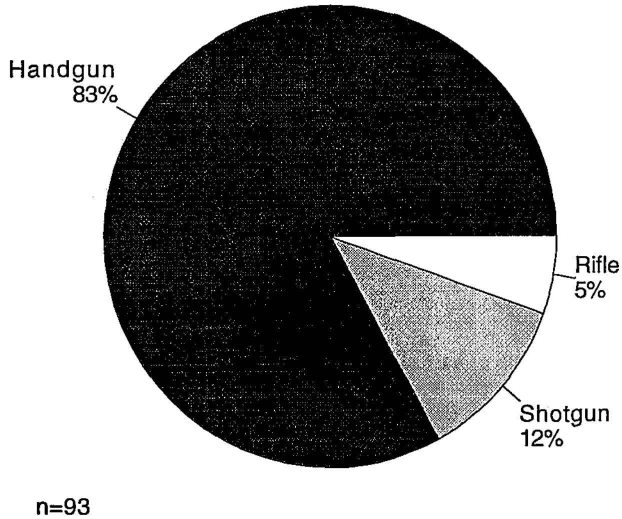


Figure 4. Type of Weapon: Travis County Residents, 1993



Results

Firearm-related injuries resulted in 140 hospitalizations at Brackenridge Hospital during the year. Of the 140 hospitalizations, 108 (77%) patients were Travis County residents and 32 (23%) were residents of other counties. Only analyses performed on the data pertaining to Travis County residents are presented. Figure 1 illustrates the monthly distribution of firearm-related hospitalizations. January had the fewest admissions (3) and August the most (14). On average, nine residents were admitted each month.

Demographic information for the 108 Travis County residents hospitalized for firearm-related injuries is in Table 1. Fifty-nine (55%) of the hospitalized Travis County patients were 15 to 24 years of age, 91(84%) were males, and 43 (40%) of the residents were African Americans.

Figure 2 illustrates the day of the week of admission for the 108 hospitalizations. Fifty-eight (54%) were admitted on Friday, Saturday, or Sunday. Figure 3 illustrates the length of hospital stay of 108 Travis County residents admitted for firearm-related injuries. Firearm-related injuries accounted for 659 hospitalization days. The mean length of hospital stay was six days, with a range of 1 to 30 days. Of the 15 residents who stayed for less than one day, all but two died. In all, 19 of the 108 hospitalized patients died. Forty-six patients (43%) required care in the Intensive Care Unit (ICU); 89 (82%) recovered and were discharged. Firearm-related injuries accounted for 147 ICU days.

Law Enforcement Data. Law enforcement information was found for 98 (91%) of the 108 Travis County residents hospitalized for gunshot wounds. As Figure 4 illustrates, the type of weapon used most frequently in Travis County shootings was a handgun. Of the 93 cases in which the weapon type was known, 77 (83%) involved a handgun. The four most prevalent caliber types for these handguns were as follows: 22 caliber, 9 millimeter, 25 caliber, and 38 caliber.

Figure 5. Gunshots by Intent: Travis County Residents, 1993

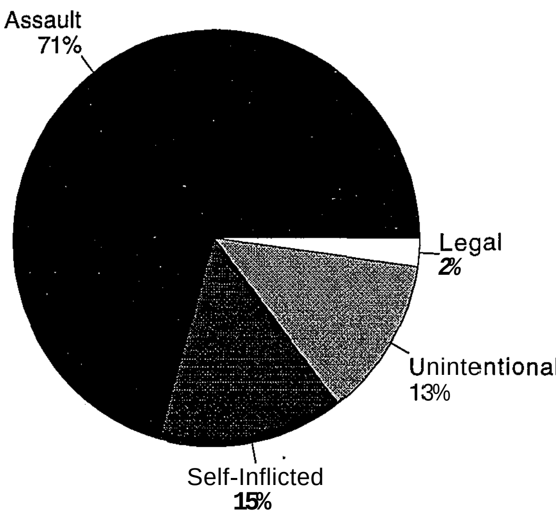


Table 1. Demographic Data for 108 Persons Hospitalized for Treatment of Firearm Injuries: Travis County Residents, 1993

	No.	Percentage
Gender		
Male	91	84
Female	17	16
Age (Years)		
5-9	1	1
10-14	2	2
15-19	26	24
20-24	33	31
25-29	13	12
30-34	14	13
35-39	8	7
40-44	5	4
45-49	3	3
50-54	0	0
55+	3	3
Race/Ethnicity		
African American	43	40
Hispanic	32	29
White (non-Hispanic)	31	29
Unknown	1	1
Other	1	1

The geographic occurrence of the shooting was documented on 97 of the 98 police reports. Thirty-seven victims (38%) were shot in one concentrated area of East Austin.

Figure 5 illustrates firearm-related injuries by intent. Of the 96 cases in which intentionality could be determined, 68 (71%) involved assaults, 14 (15%) were suicide attempts, 12 (13%) were unintentional discharges, and 2 (2%) were related to a legal intervention.

Medical Care Charges. Medical charges (excluding physician fees) for the 108 Travis County residents hospitalized for firearm-related injuries totalled $1,642,898. With charges per hospitalization ranging up to $93,264, the average was $15,212 and the median, $8,905.

Injury Prevention and Control Program
(512) 458-7266

Flood-Related Mortality in Southeast Texas, October 16-25

Introduction

Heavy, prolonged rains beginning October 16, 1994, resulted in devastating flooding of much of southeastern Texas over a period of approximately two weeks. Fed by deep tropical moisture from the Gulf of Mexico, a large storm cell developed over Montgomery, Walker, Polk, and San Jacinto counties. More than five inches of rain fell in less than three hours. Excessive rainfall continued throughout the next forty-eight hours[1].

Thirty-five counties were declared either total or partial federal disaster areas. Most of these counties received 10 to 15 inches of rain. Lake Conroe, the west fork of the San Jacinto River, the Trinity River above Lake Livingston, and the Trinity River above Liberty received 20 to 25 inches of rain. The result was massive flooding in the Brazos, San Jacinto, and Trinity river basins; in Pine Island Bayou; and in the Neches River watershed. Eighty-seven water systems in ten counties were contaminated or otherwise affected by flood waters. Fifty-year-old crest records of lakes, creeks, and rivers were frequently broken.

The 1994 population in the affected counties is estimated to be 5,082,262 (or 28% of the entire population of Texas)[2]. Over 10,000 persons were evacuated from flooded areas. More than 20,000 homes, several schools, and numerous businesses sustained some degree of flood damage. Numerous roads were inundated and closed.

Methods

To assess mortality associated with this episode of flooding, staff of the Injury Prevention and Control Program (IPCP), Bureau of Epidemiology, Texas Department of Health, obtained' epidemiologic information from officials in a 36-county area (35 disaster-declared counties and one adjacent county [Lavaca]). Medical examiners, sheriffs, county judges, emergency management office personnel, hospital personnel, and Texas Department of Health regional office personnel were questioned by telephone using a standard survey tool developed by IPCP.

A flood-related death was defined as occurring between October 16 and October 25, 1994, and directly or indirectly related to flooding in the study area. A directly-related death was defined as one that resulted from physical contact with flood water, such as drowning. An indirectly-related death was defined as one that did not result from physical contact with flood water, but would not have happened if flooding had not occurred. Examples of indirect deaths include those resulting from a flood-related activity, such as electrocution due to post-flood cleanup, cardiac arrest due to exertion or stress during the flood or during post-flood cleanup, or motor vehicle crashes related to flood-diverted traffic patterns. A motor vehicle-related death was defined as any death that would not have occurred in the absence of a motor vehicle.

Figure 1. Flood-Related Deaths by Age: Southeast Texas, October 16-25

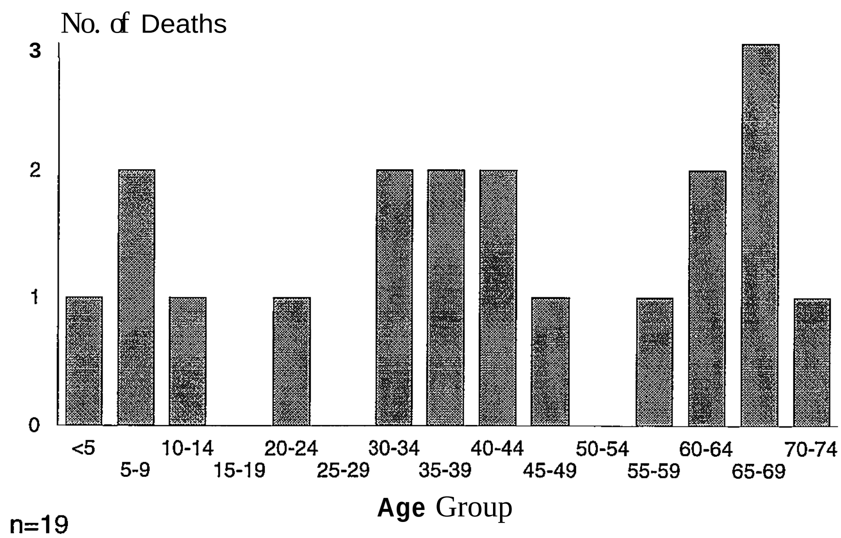
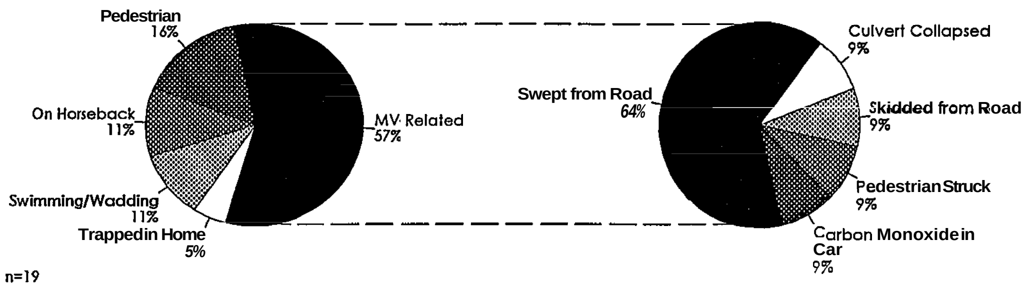


Figure 2. Flood-Related Deaths by Circumstance: Southeast Texas, October 16-25



Fifty-eight percent (11/19) of the confirmed deaths were motor vehicle related, usually because the motor vehicle was driven into high water. Nine of the eleven (82%) motor vehicle-related deaths occurred within approximately five miles of the victim's home.

Data of interest about each victim included age, race, gender, residence, date of death, location of death, immediate cause and circumstance of death, source of flood water responsible for death, and distance of death scene from victim's home.

Results

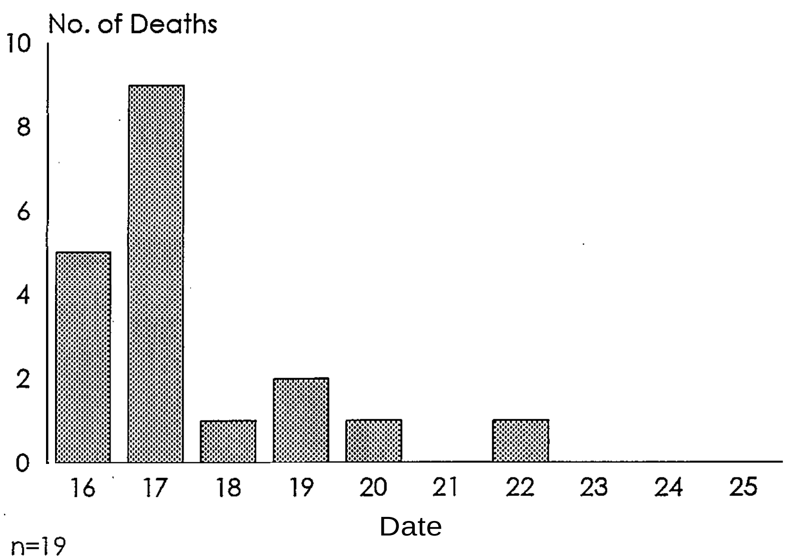
Nineteen deaths occurred as a result of the floods that occurred October 16 through October 25. Eighteen victims were Texas residents, and one lived in Mexico.

Seventeen of the nineteen deaths (89%) were directly related to flooding (ie, victims drowned), while the remaining two (11%) deaths were indirectly related to flooding (eg, one death due to motor-vehicle collision with a pedestrian and the other due to carbon monoxide poisoning).

Figure 1 illustrates flood-related deaths by age. Decedents ranged in age from 2 months to 72 years (mean: 41 years; median: 43 years). Seventy-four percent (14/19) of decedents were males, and 26% were females. The racial/ethnic breakdown of flood-related deaths is as follows: 58% (11) white, 16% (3) Hispanic, and 26% (5) African American. Figure 2 illustrates the circumstances of the 19 flood-related deaths.

Nine of the eleven (82%) motor vehicle-related deaths were due to drowning. Seven drowning victims and their vehicles were swept from roadways by fast-moving, deep water. A mother lost 2 of 4 children as the family attempted to reach safety after their car was driven into high water; and an infant slipped from the arms of his father as the family climbed onto the roof of their car after driving into high water. Another victim who drowned lost control of his vehicle, which then skidded into a flooded gully; and one victim died when a culvert collapsed, sending him and his vehicle into the flooded creek.

Figure 3. Flood-Related Deaths by Date: Southeast Texas, October 16-25



Of the non-drowning victims, one was a pedestrian hit by an auto trying to avoid high water on the road. Another died of carbon monoxide poisoning while idling his pickup truck in high water.

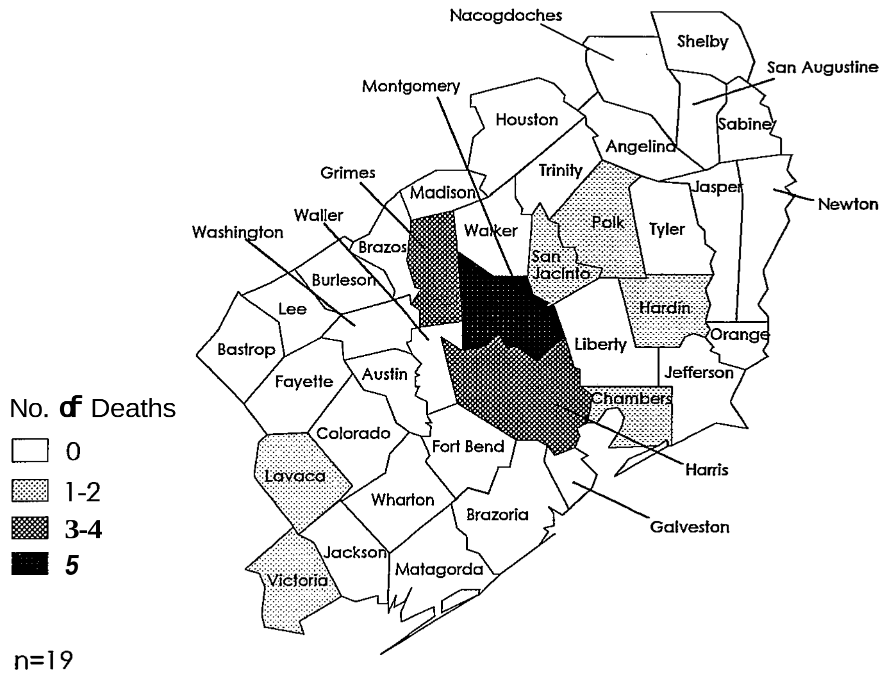
Forty-two percent (8/19) of the deaths were not motor vehicle related. Two ranchers on horseback drowned as they attempted to drive their animals to higher ground; two individuals died when they attempted to swim in flood waters; three victims were walking when they slipped into flood waters; and one victim drowned inside her home.

Figure 3 illustrates flood-related deaths by date. During the first two days of flooding (October 16 and 17), 91% (10/11) of the motor vehicle-related deaths occurred, and 68% (13/19) of deaths occurred.

Eighteen of the nineteen deaths occurred during flash flooding of creeks or rivers. Deaths associated with the San Jacinto River and Holland Creek accounted for 33% (6/18) of the flash flood deaths. On October 16 in Grimes County, flash flooding of Holland Creek caused two separate incidents that occurred within one hour and 100 yards of each other and resulted in three deaths. Two additional deaths, one in Montgomery County and the other in San Jacinto County, occurred within thirty minutes of each other on the same river, the San Jacinto. Another death on the San Jacinto River in Montgomery county occurred two days later. The only death not directly due to flash flooding occurred when a 63 year old woman drowned inside her flooded Montgomery County home after she refused to leave.

As Figure 4 illustrates, 68% (13/19) of the deaths occurred in three counties (Montgomery, Harris, and Grimes). Montgomery and Harris counties had five and four deaths, respectively.

Figure 4. Flood-Related Deaths by County: Southeast Texas, October 16-25



Discussion

Floods are the most common natural disasters in the United States and cause the greatest number of disaster-related deaths[3], an average of 146 deaths annually[4]. Floods can be divided into two forms, each with a different significance for injury prevention. Flash floods, the first form, occur within a few minutes or hours of excessive rainfall, or dam or levee failure, and account for most fatalities[5]. Sufficient warning time for rapid evacuation and road closure is essential to prevent fatalities during flash flooding. Comprising the second form, river-related floods are a longer term event and may last a week or more. There is more time to evacuate and reroute traffic during river-related flooding.

Nationally, the most common cause of flood-related deaths is drowning[3]. This investigation found that 89% (17119) of the flood-related deaths in southeast Texas were due to drowning. More than half of flood-related drownings in this country occur among persons who attempt to drive vehicles through hazardous flood waters[3]. This investigation found that 53% (9117) of the drownings in this flooding episode were associated with motor vehicles.

Vehicle-associated flood deaths are generally preventable. It is important that both pedestrians and motor vehicle occupants avoid becoming stranded by recognizing the potential for certain areas to become hazardous flood zones. The recommendations of the Texas Department of Health on life-saving precautions regarding floods are listed below.

- If you encounter flood waters, stop, turn around and go another way.
- Do not drive in flood water over one foot deep or into water of unknown depth. Be aware that most cars will float in two feet of water. Be aware that the road bed may not be intact under flood waters.
- Abandon your vehicle immediately and seek higher ground if it stalls in a flood. Deaths often occur because people mistakenly believe vehicles provide protection from rising, swiftly-moving flood waters.
- Comply with all detour signs. Never try to go around a detour sign.
- Do not walk or bicycle in flood water over one foot deep or into water of unknown depth. Even 6 inches of fast-moving water can knock you off your feet.
- Do not allow children to play in flood water of any depth. Children should never play around storm drains or viaducts.
- Evacuate to higher ground if floods rise around your home.
- Be aware that most flood deaths occur close to home.
- Be especially cautious at night when it is harder to recognize flood dangers.
- Do not enter flooded buildings unless electricity is known to be shut off.
- If you are elderly or have a history of heart disease, avoid overexertion. Get help for strenuous tasks. Stress and overexertion increase the likelihood of heart attack and death for persons with underlying heart disease.
- Avoid the use of alcohol and other intoxicating substances in areas where flooding has occurred.
- Do not explore caves during rainy or flood-prone weather

References

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3. Frazier K. The violent face of nature: severe phenomena and natural disasters. New York: William Morrow and Company Inc., 1979.
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Traumatic Spinal Cord Injuries

From January through December 1994, 313 cases of traumatic spinal cord injury (SCI) sustained in Texas were reported to the Texas Department of 'Health (TDH) Injury Prevention and Control Program. Legislation passed in 1993 (Health and Safety Code, Chapter 87) mandates reporting SCIs to the local or state health department. During 1994, SCI cases that occurred in Texas were reported from 38 hospitals or rehabilitation facilities and from the state health departments of Colorado and New Mexico. Thirty-one (10%) patients died during treatment in the hospital, while 81 (26%) entered long-term rehabilitation programs. The average length of stay for acute-care hospital patients was 18 days, with a median of 9 days.

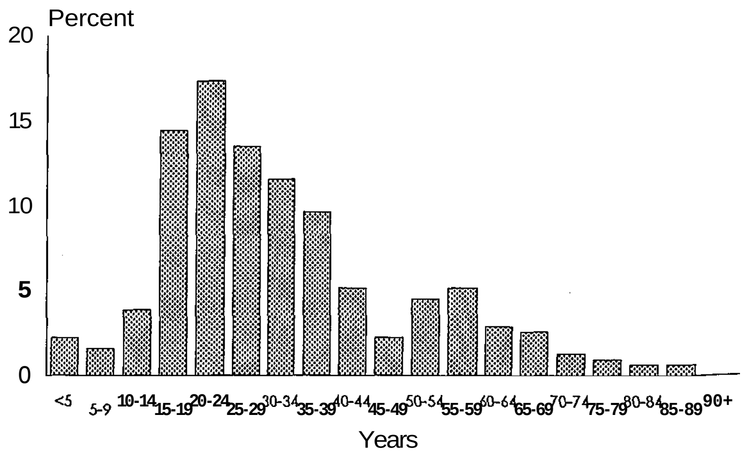
Ages ranged from 3 years to 93 years (mean of 33 years, median of 29 years). People under 30 years of age sustained 163 (52%) injuries (Figure 1). Sixty (19%) of the injured were 18 years of age and younger. Males accounted for 252 (81%) injured Texans. The racial/ethnic distribution of injuries is as follows: 154 (49%) white, 77 (25%) Hispanic, 74 (24%) African American, 5 (2%) Asian, and 3 (1%) Other/ Unknown.

Motor-vehicle (MV) related injuries accounted for 147 SCIs (Figure 2). Of these, 105 individuals were injured in automobiles, 11 as occupants in pickup truck cabs, 3 as passengers in pickup truck beds, 8 in motorcycle crashes, and 12 in pedestrian-MV crashes. Individuals injured in other circumstances included the following: 2 in bicycle-MV crashes, 2 in all-terrain-vehicle/go-cart crashes, and 3 in commercial vehicle incidents. Safety belts, child restraints, airbags or helmets were not used in 45% of MV-related injuries, while use of restraints was not known or reported in an additional 16% of cases.

As Figure 2 illustrates, other mechanisms accounted for the remaining 166 (53%) injuries. Seventy-nine (48%) of these injuries were due to assault, 59 (36%) due to falls, 16 (10%) due to sports, and 4 (2%) due to falling objects. Gunshots accounted for 92% of assaults. Overall, gunshots accounted for nearly 1 in every 4 (23%) SCIs.

Intent of injury was known for 283 (90%) incidents. Sixty-nine (22%) of these were categorized as "intentional" (ie, suicide attempts and assaults).

Figure 1. Percent of Spinal Cord Injuries by Age Group, Texas Residents



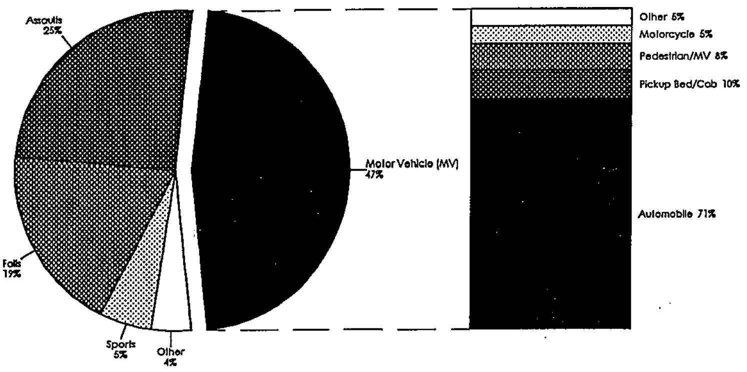
n=313

Ninety (29%) injuries were reported as associated with alcohol consumption (though not necessarily by the victim). In an additional 19% of injuries, alcohol or drug-involvement was unknown/ untested.

Information concerning job-related injuries was available for 283 (90%) cases. Of these, 22 (7%) were job-related. Of these, 12 (55%) received injuries as the result of a fall, while 3 (14%) were injured by falling objects.

Information on type and extent of injury was available for 287 (92%) cases. Of these, 124 (43%) resulted in paraplegia, and 165 (57%) resulted in quadriplegia. The most severely injured persons (ie, injuries to neck resulting in total loss of sensation and movement below the injury) accounted for 74 (26%) cases of known severity.

Figure 2. Spinal Cord Injuries by Etiology, Texas Residents



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Since the beginning of the voluntary traumatic spinal cord injury surveillance effort in January 1991, 1130 Texans have been reported to the TDH Injury Prevention and Control Program. Seventy-nine (7%) Texans died during treatment in the hospital, while another 288 (25%) entered long-term rehabilitation programs. Motor-vehicle-related crashes accounted for 48% of SCIs, while gunshots accounted for 20% of SCIs. Seventy-seven percent of all SCIs occurred to males. SCIs occur most often to younger individuals (73% from the current database are under age 40) with potentially many decades of productive life to contribute to society. The average life-time cost of treating SCIs runs into millions of dollars per person.

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Legionellosis

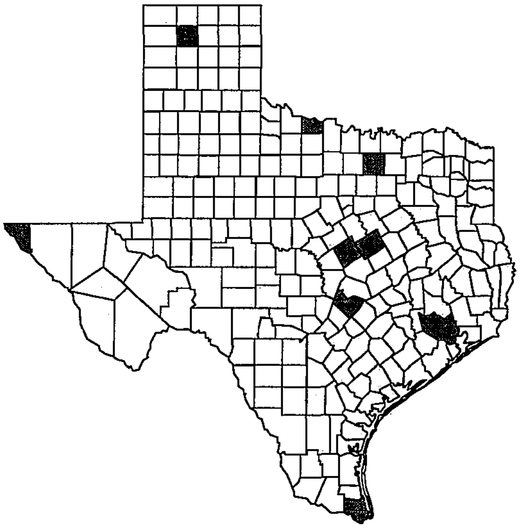
Legionellosis, which may present as either Legionnaire's disease or Pontiac fever, is an acute bacterial disease caused by *Legionella pneumophila,* a poorly staining, gram-negative bacillus commonly found in water. Of the 14 currently recognized serogroups of L. *pneumophila* bacteria, serogroup 1 is most commonly associated with outbreaks and sporadic cases of legionellosis.

Symptoms of legionellosis include headache, fatigue, weight loss, body aches, and fever. Nonproductive cough, abdominal cramps, and diarrhea occur in many patients. Patients with Legionnaire's disease also develop pneumonia which is sometimes fatal. There is no pneumonia with Pontiac fever, but the patient may have a high fever for 2 to 5 days and then recover without treatment. Legionellosis most commonly occurs in patients who are elderly, immunocompromised, or otherwise in poor health.

Legionella bacteria typically live in water. Hot tubs, shower heads, water faucets, air conditioning systems, water cooling towers, and hot water heaters have all been implicated as sources of infection in outbreaks. People can become ill with legionellosis after breathing aerosolized water droplets contaminated with the bacteria.

In 1994 there were 15 confirmed cases of legionellosis reported to the Texas Department of Health (TDH) (Figure 1). The patients lived in nine counties dispersed widely across the state. Thirteen patients were male and two were female. The mean age was 57 years old (range: 35 to 85). Two patients died.

Figure 1. Counties Reporting Confirmed Cases of Legionellosis in Texas, 1994



In August 1994 a legionellosis outbreak occurred in out-of-state residents staying in a San Antonio hotel. Three men became ill after staying at the hotel; one died. The San Antonio Metropolitan Health District and TDH coordinated environmental sampling of air conditioning systems, shower heads, water faucet aerators, and swimming pools at the hotel. *L. pneumophila* serogroup 1 bacteria were found growing in the shower heads of rooms where the patients had stayed; decontamination efforts were ordered to prevent further infection.

Infectious Disease Epidemiology and Surveillance Division (512)458-7676

Listeriosis Outbreak in Laredo

The city of Laredo, population 122,899, is in Webb County. Located on the border of the state of Tamaulipas, Laredo is considered the gateway to 'Mexico. Only four cases of listeriosis were reported from Webb County from 1986 through 1993. During the same time period, from 26 to 42 cases were reported annually statewide. Between December 12, 1993, and January 29, 1994, five cases of listeriosis occurred in Laredo.

On January 17, 1994, the Infection Control Coordinator at Mercy Regional Hospital in Laredo contacted the Texas Department of Health Infectious Disease Epidemiology and Surveillance Division regarding three cases of listeriosis that had occurred since December 24, 1.993. One .patient was a pregnant woman; the other two were newborn infants. In cooperation with the City of Laredo Health Department, the Texas Department of Health (TDH) began an investigation of an apparent increase in listeriosis cases.

Methods

Hospitals in surrounding counties were contacted to identify additional cases. Beginning February 2, 1994, a case-control study was conducted to determine a possible source for the increase in listeriosis in Webb County. For the purpose of this investigation, a case-patient was defined as a resident of Webb County who was the mother of a neonate or was an adult whose test results were culture positive for Listeria monocytogenes after December 1, 1993. For each case-patient; three controls were selected at the hospitals where cases had been identified and matched on admission date, age, sex, and reason for hospitalization.

Demographic, clinical, and food consumption histories for case-patients initially were collected using a standard listeriosis questionnaire developed by the Centers for Disease Control and Prevention (CDC). This questionnaire identified potential risk factors, which were used to distinguish between cases and controls. A second questionnaire focused on these possible risk factors: consumption of dairy products, packaged meats, other prepared meats, prepared salads, fruits, vegetables, and restaurant and take-out food items. The controls were interviewed, and the case patients were reinterviewed using the second questionnaire. Data were analyzed using Epi Info.

Product brands, places of purchase, and preparation practices were determined for implicated foods. Food items were collected from a retail food establishment in Laredo and from grocery stores in Laredo and San Antonio. These samples were sent to TDH and FDA laboratories.

Available L. monocytogenes isolates were sent to the TDH Laboratory for confirmation and analyzed by pulsed-field gel electrophoresis (PFGE). These isolates were then submitted to the CDC for serotyping. Food items were collected from all five case-patient homes during the first week of February and sent to the TDH Laboratory for analysis. One specimen yielded *Listeria* innocua, which was not the etiologic agent of the outbreak.

Results

From December 17, 1993, through January 29, 1994, the diagnoses of listeriosis were culture-confirmed for five patients, all Webb County residents (Table 1). Since no controls could be found for a case-patient with cancer, this case was excluded from analysis. The four remaining case-

Table 1. Listeriosis in Laredo

Age/ Sex/ Race	Onset	Cinical Disease	Risk Factor	Died	Serotype	PFGE Profile
34/F/H	12/17/93	Sepsis	Pregnant	spont. Ab	4B	TX Profile E
1d/F/H	1/5/94	Sepsis	Newborn	N	4B	TX Profile E
, d/M/H	1/10/94	Sepsis	Newborn	N	4B	TX Profile E
14d/M/H	1/18/94	Sepsis	Newborn	N	45	TX Profile E
59/F/H	1/29/94	Sepsis	Cancer	N	4B	TX Profile E

patients consisted of three mothers of newborn infants and one woman who had had a spontaneous abortion secondary to her infection. Food histories from these four case-patients and 12 controls were analyzed.

Cauliflower was the only food item associated with illness (Table 2). Individuals who had eaten cauliflower during the month prior to their illness were **33** times more likely to be ill than those who had not (p=.027). Three had eaten the cauliflower in a frozen mix of broccoli, cauliflower, and carrots. One had eaten raw cauliflower at a local fast-food restaurant.

Table 2. Cauliflower Culture and PFGE Results*

Id. No.	Brand	Date Collected	Store	Culture* Results	PFGE Results
BF4-45	A	03117/94	W	negative	
BF4-46	B	03117/94	W	negative	
BF4-47	B	03117/94	W	negative	
BF4-48	C	03117/94	X	negative	
BF4-49	C	03117/94	X	negative	
BF4-50	D	03/17/94	W	LM	Profile B
BF4-51	E	03117/94	Y	LM	Profile C
BF4-52	F	03117/94	W	LM	Profile D
BF4-53	F	03117/94	W	LM	
BF4-54	F	03117/94	W	LM	
FDA #16	G	05110194	Z	LM	Profile B1
FDA #18	G	05/10194	Z	LM	Profile B1
FDA #1	H	05110194	Z	LM	Profile G
FDA #8	H	05110/94	Z	LM	Profile H
94687501	F	04/25/94	Z	LM	Profile E
94687502	D		Z	LM	Profile F

* LM = ***Listeria monocytogenes***

L. monocytogenes was found in a number of the packages submitted for testing. Since the frozen food mix purchased by the individuals in Laredo had cooking instructions, it was not removed from the market. Patient isolates were serotype 4B. All five Webb County case isolates were found by PFGE to be indistinguishable. *L. monocytogenes* was also identified in seven mixed, frozen vegetable samples collected at grocery stores in Laredo and San Antonio. PFGE found one of two serotype 4B food isolates to be indistinguishable from the case isolates.

After the case-control study was completed, seven additional listeriosis cases were reported in South Texas from March 10 through June 30, 1994. Patients resided in the counties of Webb (2 cases), Nueces (4 cases), and Hidalgo (1 case). Onset of illness for both Webb County cases was in May 1994. The Nueces County cases had onset in the months of March, May, and June. The Hidalgo case also had onset in June.

The bacterial strain responsible for this outbreak was identified through lab results from both of the post-study Webb County cases and one of the Nueces County cases. One case from Nueces County and the Hidalgo County case had unique PFGE profiles. Isolates were not available for the other two Nueces County cases.

Discussion

Listeria monocytogenes is a gram-positive bacillus found frequently in the environment. It has been isolated from soil, water, sewage, and other environmental sources. *L. monocytogenes* primarily affects pregnant women and neonates, persons with immune-system disorders, and the elderly. Epidemiologic investigation of several outbreaks of listeriosis during the 1980s demonstrated that epidemic listeriosis is a foodborne disease. Food items that have been associated with listeriosis include undercooked chicken, uncooked hot dogs, cole slaw, microwaved turkey franks, soft cheese, raw vegetables, and pasteurized whole or 2% fat milk.

The cluster of listeriosis cases described here occurred over a 6-month period of time. The investigation revealed that persons who had eaten cauliflower were more likely to be ill than those who had not. Laboratory evidence indicated that eight of the patients had *L. monocytogenes* isolates that were indistinguishable from one another. *L. monocytogenes* was found in a number of mixed, frozen vegetable packages collected from grocery stores in Laredo and San Antonio. One of the packages from San Antonio had a listeria isolate indistinguishable from the case isolates. These laboratory results indicate a common source outbreak. How transmission occurred is still in question since this particular frozen vegetable mix should be cooked prior to eating. The patients reported boiling the mix for about 15 minutes or until the vegetables were soft. *Listeria* may have survived the cooking, or the vegetables may have been recontaminated after cooking. Control of listeriosis is dependent upon patient education. Frozen, mixed vegetables may be a source of sporadic and outbreak-associated listeriosis cases.

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Malaria - Local Transmission in Houston

Since the late 1940s, when malaria was eradicated as an endemic disease in the United States, almost all cases of malaria reported among Texas residents have been associated with foreign travel. The last case thought to have been acquired in Texas occurred in Dallas in 1985. In August 1994 the Texas Department of Health was notified of two malaria patients in Houston who had not traveled abroad. After an investigation was completed, a third patient (also with no foreign travel history) was reported from Houston in December.

The first patient was a 62-year-old white man who was hospitalized on July 8, 1994, with an eight-day history of fever, chills, sweats, and vomiting. *Plasmodium vivax* parasites were detected in a blood smear on July 11. He recovered after treatment with chloroquine and primaquine. He had not traveled outside Houston in 40 years. He had extensive mosquito exposure at night while working as security chief at a mission for the homeless.

The second patient was a 37-year-old Hispanic man who was hospitalized on July 18, 1994, with a three-week history of fever, chills, sweats, and headache. P. *vivax* parasites were seen on a routine peripheral blood smear drawn in the emergency room. He recovered after treatment with chloroquine and later received primaquine during the investigation. He had never traveled outside of Texas. He had exposure to mosquitos every night, as he slept in an unenclosed shack.

The two patients lived three miles apart in Houston. They were not acquainted and had no common site of exposure. Neither had a history of tattoos, blood transfusions, or recent injecting drug use. *Anopheles quadrimaculatus,* a competent mosquito vector for malaria, was found in the neighborhood where the patients lived.

Active casefinding in Harris County identified 17 previously unreported cases of malaria diagnosed between June 1 and August 22. All but two of the patients had traveled to malaria endemic countries. One of the two had traveled only to Monterrey and the other to Matamoros; areas without known ongoing malaria transmission. Of 10 cases of P. *vivax* infection identified during this time, three (30%) had been treated with chloroquine alone. In P. *vivax* and *P. ovale* infections, both chloroquine and primaquine are needed to prevent relapse of infection.

On December 4, 1994, a 50-year-old African-American man was hospitalized with a three-week history of altered mental status, fever, and syncope. P. *vivax* parasites were identified on a routine peripheral smear on December 6. The patient had never traveled outside the United States. He had exposure to mosquitos at night while sleeping in a house with no window coverings. Further investigation revealed that he had been hospitalized in August 1994 with a similar illness thought to be viral meningitis. Serological studies on serum saved from that hospitalization suggested that his illness was actually acute malaria rather than viral meningitis. The December illness was likely a relapse of untreated infection. The man lived within two miles of the first two patients. He was most likely infected at the same time as the first two, possibly by the same pool of infected mosquitos.

Malaria is a reportable condition in Texas. Eighty-four cases were reported in 1994. However, this report provides evidence of considerable underreporting. Keys to preventing the reemergence of malaria as an endemic disease in Texas include control of mosquito vectors, prompt recognition and reporting of all cases of malaria, and appropriate treatment of the disease.

Infectious Disease Epidemiology and Surveillance Division (512) 458-7676

Malaria Surveillance

Ninety-three malaria infections were reported in 1994, an increase of 94% over the 48 cases in 1993. The reported case total for 1994 was the largest since 1985, when the same number of cases were reported. There were 88 (95%) imported cases, 3 mosquito-transmitted infections, and 2 infections resulting from blood transfusions. Two blood donors were identified as the sources of the transfusion-acquired infections. The asymptomatic infections of the donors were recognized but not included in the official morbidity.

Among imported cases, 57 (65%) were in males and 31 in females. Race and/or ethnicity was reported for 92 individuals: 35 (38%) were classified as African American; 22 as white; 18 as Asian/Pacific Islanders; and 16 as Hispanic. Many patients classified as African American, however, were African and not American. Ages were reported for 87 patients and ranged from 6 to 73 years, with a median of 35. Five patients were younger than 10 years old; all were classified as African American.

Four species of Plasmodium (P. falciparum, P. vivax, P. malariae, and P. ovale) infect man. The Plasmodium species was identified in 83 infections: 40 (48%) were caused by P. vivax; 31 by P. falciparum; 8 by P. malariae; and 1 by P. ovale. Three mixed-species infections were recognized including P. falciparuml P. malariae from Ghana, P. falciparuml P. vivax from India, and P. vivaxl P. malariae without information on country/region of acquisition.

Of 80 individuals for whom a source country1 region was given, at least 40 (50%) had been in Nigeria (22) or India (18). One additional individual had been in both India and Africa (country not reported) and five were in Africa (one individual specifically reported having been in "West ,Africa"). Other countries in Africa where malaria infections were acquired included: Kenya (3), and Benin, Chad, Ghana, Liberia, Sierra Leone, and Zimbabwe (1 each). One case was reported from each of four additional Asian/Pacific Island countries: Indonesia, Iraq, New Guinea, and Pakistan. Of infections acquired in the Western Hemisphere, nine (45%) were reportedly from Honduras. Other infections were acquired in El Salvador (3); Mexico and Panama (2 each); and Belize, Brazil, "Central America," and Nicaragua (1 each). The source country was not reported for eight patients.

Two transfusion-acquired P. falciparum infections were reported. Both patients had undergone coronary bypass surgery in Houston and had received blood products. For each patient a P. falciparum-infected donor was identified, one from Nigeria and one from Ghana. Neither donor reported recent clinical symptoms compatible with acute malaria. Information available for one donor included malaria infection (type unknown) in 1982 and intermittent use of chloroquine (most, if not all, P. falciparum in West Africa is resistant. to chloroquine). Blood collected for transfusion in the US is not screened for malaria parasites. Prospective donors are questioned regarding a previous history of malaria (both directly and indirectly through questions covering the various symptoms of acute malaria infection) and travel to/residence in malarious areas. They may be deferred from donating depending upon their answers. No information was available to determine how these two individuals "slipped through the cracks" and were accepted as blood donors.

Malaria may have been a contributing factor in the death of a 73-year-old woman who moved to Texas from India within a year of becoming ill. She was hospitalized with adult respiratory distress syndrome (ARDS) and subsequently was diagnosed with P. falciparum. ARDS was listed on her death certificate as the primary cause of death; the role malaria played in the woman's death was not clearly elucidated.

For the first time since 1985, mosquito-transmitted (introduced autochthonous) malaria occurring in Texas was documented. The three separate infections, all caused by P. vivax, were in adult male residents of Houston and occurred in July. Representatives of the Texas Department of Health Infectious Disease Epidemiology & Surveillance Division and the Centers for Disease Control and Prevention's Malaria Branch assisted the Houston Health and Human Services Department in investigating these cases. The investigations are discussed in detail in a separate section in this report. Although malaria is a reportable disease in Texas, 17 infections that were recognized during this investigation had not been previously reported. These unreported malaria cases had been diagnosed in Houston between June 1 and August 22.

Infectious Disease Epidemiology and Surveillance Division *(512) 458-7676*

Measles

Measles is an acute viral illness characterized by an initial multiple-symptom prodrome followed by a generalized maculopapular rash. The prodrome typically lasts 2 to 4 days and is defined by high-grade fever, cough, coryza, conjunctivitis, and Koplik spots (blue-white spots in mouth). Afterwards, a rash begins at the hairline and spreads downward to cover the rest of the body. Lesions are generally discrete, but may become confluent. The rash usually lasts 5 to 6 days. Disease transmission occurs primarily through person-to-person contact via respiratory droplets and, to a lesser degree, through airborne contact with aerosolized droplet nuclei. Associated complications include otitis media, pneumonia, seizures, bronchitis, and encephalitis. In recent years, case fatality rates have ranged from 1 to 3 fatalities per 1,000 reported cases.

Whereas measles was one of the most prevalent and feared childhood illnesses just two generations ago, its incidence has been reduced by approximately 98% since licensure of the measles vaccine in 1963. Measles occurrence has declined from the 400,000 to 900,000 cases reported annually in the US in the pre-vaccine era to an all-time low of 312 cases in 1993. Unfortunately, the 55,622 cases reported during the measles epidemic of 1989 through 1991 demonstrated the potential for morbidity in a highly vaccinated population.' The epidemic did not bypass Texas, as more than 8,000 cases statewide were reported during the same three-year period.

Efforts made toward reducing measles morbidity since the last epidemic have paid off in record low numbers of reported cases: 10 in 1993 and 17 in 1994. Despite a 70% increase over the 1993 total, the 17 serologically confirmed cases in 1994 still represented the second lowest annual total ever reported in Texas; Following the typical seasonal pattern of the disease, 14 of the 17 cases occurred in the winter and early spring (January through April). The only measles cluster was reported from Tarrant County, with eight cases occurring during February and March. Of the remaining nine cases, none were epidemiologically linked. Eight of these nine cases were reported from highly urbanized counties. Eleven cases were classified as indigenous with exposure having occurred within Texas. Six cases reported exposure to measles beyond the borders of Texas; one out-of-state importation associated with an identified measles outbreak in Colorado, and five international importations.

Thirteen of the reported cases could have been prevented with adherence to the Texas Department of Health's (TDH) recommended immunization schedule. Eleven of the 13 cases with no prior measles immunization history involved patients old enough (1 year or over) to have received at least 1 dose of measles vaccine. Two infected individuals had received only 1 dose of measles vaccine although they were old enough (4 years or over) to have received a second dose.

As proof of the severity of measles illness, numerous complications and hospitalizations arose from the cases reported in 1994. Seven (41%) of the patients suffered from at least one complication, and 5 (29%) required hospitalization. Pneumonia, edema, hypoxic respiratory problems, and otitis media were among the complications cited as causes for hospitalization. Number of days hospitalized ranged from 2 to 5 days, with an average stay of 3.5 days.

The occurrence of measles was split evenly along gender lines, with males and females comprising 9 (53%) and 8 (47%) of reported cases, respectively. In line with the prevailing national trend, the majority of cases (53%) occurred among preschool-aged children (ages 0 through 4 years). Three cases were reported in the age cohort of 10 to 14 years. Two cases apiece were reported in the age cohorts of 20 to 29 years and 30 to 39 years, and one case in the cohort 40 to 49 years of age.

Since the 1960s , TDH has devised several strategies for reducing measles morbidity and mortality. Universal immunization with one dose of measles vaccine and the establishment of a measles vaccination requirement for admission to Texas schools and child-care facilities brought about the first drastic reductions in measles incidence. The resurgence of measles activity in the late 1980s and early 1990s triggered new efforts, as TDH lowered the age for administration of the first measles dose from 15 months to 12 months and implemented a second dose requirement at age 12 years. As of 1994, compliance with the measles first dose requirement within the eligible Texas public school and child-care facility enrolled populations had reached 99% and 98%, respectively.[2,3]

References

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Immunization Division (512) 458-7284

Meningococcal Infections

The Texas Department of Health (TDH) received 237 reports of meningococcal infections during 1994. At least one case was reported from each of 55 counties throughout the state. The four counties with the largest number of cases reported also represent the most populated parts of the state: Dallas (43 cases), Harris (29 cases), Travis (21 cases), and Tarrant (19 cases). Prior to this year, the last time over 200 cases were reported was 1982, when 238 cases occurred.

The TDH Laboratories received 149 bacterial isolates for serotyping and pulsed-field gel electrophoresis (PFGE). Sixty percent of the isolates were group C; 28%, group B; 9%, group Y; and 3%, group W135.

The overall rate of disease for the state was 1.2 cases per 100,000 population.' Patients ranged in age from 7 days to 94 years, but the highest rate of infection (11 cases per 100,000) occurred in children under one year of age. The rate for children from 1 to 4 years of age was 3.8 cases per 100,000, and the rate for children from 5 to 9 years of age was 2.3 cases per 100,000. The rate in all other age groups was projected at 1.4 or fewer cases per 100,000. Fifty-one percent of the patients were male. Sixty-four percent of the patients were white, 24% were Hispanic, and 9% were African American. Thirteen percent (33) of the patients died; 61% (20 cases) of the patients who died had sepsis.

Outbreaks occurred in four counties during 1994. Sixteen cases were reported from Gregg County in 1994. Thirteen of the 16 patients had *Neisseria meningitidis* group C infections, and 8 of these 13 cases occurred between January and June 1994. During the outbreak period, 5 of the 8 patients identified were from 2 to 7 years of age. Because the infection rate among Gregg County residents 2 to 9 years of age was 23 cases per 100,000 population, meningococcal vaccine was recommended for this group. PFGE was done on all eight group C isolates. Six of these isolates were indistinguishable from each other and named Texas: A. The other two, which were indistinguishable from each other and different by one band from the other six isolates, were named Texas: Al. Two white males, ages 2 and 73 years, died during this outbreak.

Ten cases of N. *meningitidis* group C were reported from Grayson County. Seven of these cases occurred between January and June, and the patients ranged in age from 1 to 24 years. The rate of infection for individuals between the ages of 2 and 29 was 16 cases per 100,000 population. This increase over the 1993 rate was probably related to a continuation of the 1993 outbreak in this county. Three 1994 group C isolates were identified by PFGE as Texas: A, and another was Texas: Al.

TDH has used the following criteria for recommending the use of meningococcal vaccine in a particular population: the occurrence of three or more cases in a three month period of time, and a rate of infection in a defined population of greater than ten cases per 100,000 population. Meningococcal vaccine was administered to Grayson County residents aged 2 to 29 years old for the second year in row. A one-year-old white female and a 6-year-old white male died during the 1994 outbreak.

Four cases of meningococcal infections were reported from Rusk County, just south of Gregg County, January through May 1994. No deaths occurred in Rusk County. Three of the patients were children under the age of 9 years, and one was 19 years of age. Between January and March 1994, the infection rate for persons 2 to 9 years of age was 52 cases per 100,000 population. Meningococcal vaccine was recommended for Rusk County residents in this age group. Two isolates were available for grouping and were identified as group C. One of the isolates, identified by PFGE, was Texas: A.

The fourth outbreak of meningococcal infection, totalling 21 cases, occurred in Travis County. No deaths occurred. Five of the cases occurred in Austin during July and August, and were identified as N. *meningitidis* group C. All five isolates were indistinguishable from each other by PFGE. The only other common factor among these five individuals was the fact that they had frequently visited certain downtown bars. The Austin Health and Human Services/Travis County Health Department administered meningococcal vaccine to individuals who were patrons of these bars.

Infectious Disease Epidemiology and Surveillance Division (512) 458-7676

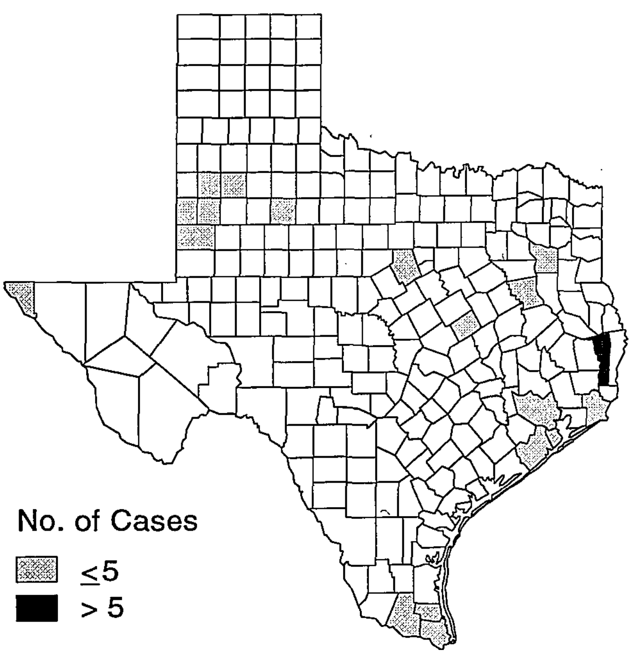
Occupational Disease Surveillance

The Texas Occupational Disease Reporting Act, passed by the 69th Legislature in 1985, required physicians and laboratory directors to report adult elevated blood lead levels at or above 40 micrograms per deciliter. This act also required reporting of a diagnosis of suspected or confirmed asbestosis and silicosis and gave 'the Texas Board of Health the authority to add other preventable occupational diseases to the list. Later that same year, the Board made acute occupational pesticide poisoning a reportable condition in Texas. The National Institute for Occupational Safety and Health (NIOSH) of the Centers for Disease Control and Prevention (CDC) has provided funding for some occupational disease surveillance activities in Texas since 1987..

Acute Occupational Pesticide Poisoning

The Environmental and Occupational Epidemiology Program (EOEP) conducts active surveillance of acute occupational pesticide poisonings throughout the state. The active surveillance uses, a sentinel provider system consisting of hospitals, clinics, and individual physicians who consent to be contacted by EOEP staff on a regular basis. Reports of pesticide poisoning cases are solicited from these sentinels. This active surveillance has expanded each year since its inception in 1990, and many agricultural areas of Texas are now included in the effort. Fifty-five health clinics, 51 hospitals, and 25 physicians participated as sentinel providers in 1994. In addition, unsolicited reports of pesticide-related illness are received from health care providers all around the state, the Texas Department of Agriculture, and other state agencies. Data also are obtained during quarterly review of death certificates.

Figure 1. Distribution by Location of Occurrence of Acute Occupational Pesticide Poisoning

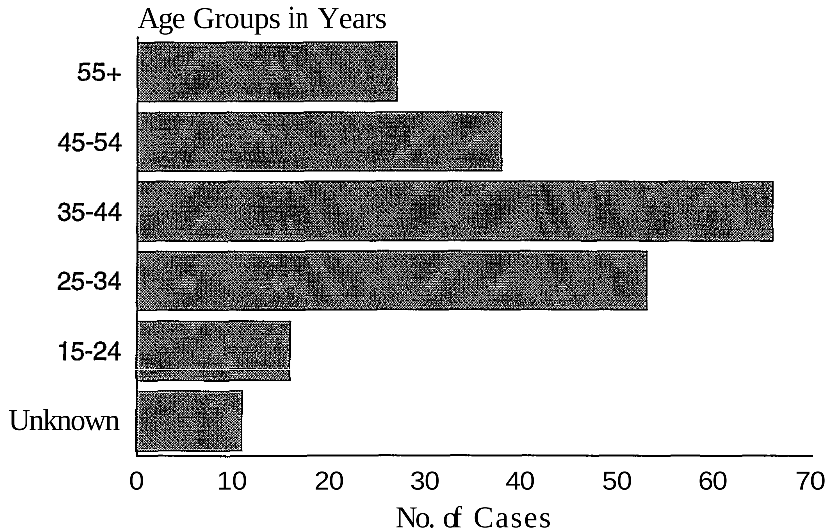


In 1994, 26 incidents of acute pesticide poisoning involving 33 workers were reported to the Texas Department of Health (TDH); one worker died. Persons with reported pesticide illness ranged in age from 18 to 70 years: 17 (52%) were white, non-Hispanic; 9 (27%) were of Hispanic descent; and 7 (21%) were African American. Twenty-three (70%) of the workers were male, and 10 (30%) were female. Reports of acute occupational pesticide poisoning in 1994 are presented geographically in Figure 1.

Agricultural settings accounted for most (19) of the reported illnesses. Exposed individuals included 1 crop duster, 2 workers cleaning pesticide storage areas, 3 pesticide handlers, 3 greenhouse workers, 3 workers loading grain treated with phostoxin, and 7 workers caught in aerial or ground drift during pesticide application. Fourteen workers became ill due to pesticide exposure in nonagricultural work settings. Two incidents involved 10 workers becoming ill due to a structural pest control application. Other workers included a veterinary assistant who was dipping dogs in flea dip, a worker exposed to chlorpyrifos while digging in dirt previously treated for termites, and a housecleaner exposed to carbamate while vacuuming.

The fatal incident, identified during routine death certificate review, involved a warehouse supervisor. The death certificate stated he died of "inhalation of toxic DDT metabolite." Further investigation by TDH failed to identify a specific exposure compatible with the statement on the death certificate. Several weeks prior to his death, however, he was exposed to glyphosate (a common herbicide), which spilled on him while he was moving 'a container in the warehouse. At the time, no one was notified, and he did not seek medical care. Several weeks later he developed breathing difficulties, pneumonia, pulmonary fibrosis, and pulmonary embolus.

Figure 2. Distribution of Elevated Blood Lead Levels by Age



Adult Elevated Blood Lead Levels

Physicians, laboratorians, and other responsible parties are required to report to TDH all blood lead levels at or above 40 mcg/dL of blood in persons 15 years of age or older. All reports are confirmed laboratory blood lead reports. EOEP received 748 reports in 1994 of 211 individuals with elevated blood lead levels. Because the Occupational Safety and Health Administration (OSHA) requires that employees be tested at two-month intervals if their blood lead levels exceed 40 mcg/dL, multiple reports were received for many individuals.

Table 1. Distribution of Elevated Blood Lead Levels by Type of Industry

141	Battery Manufacturing
33	Foundry, Smelting and Refining
12	Construction
6	Bronze Valves Manufacturing
6	Unknown
5	Radiator Repair
2	Vehicle Parts and Accessories Manufacturing
2	X-ray Protection Materials Manufacturing
1	Employment Contractor
1	Farm Machinery Manufacturing
1	Gun Club
1	Scrap and Waste Materials

n=211

As in previous years, the majority of individuals with reported elevated blood lead levels were male (206 [98%]), and 5 (2%) were female. Based on follow-up of all reported individuals, 82 (39%) were of Hispanic descent, 65 (31%) were non-Hispanic whites, and 35 (16%) were African American. Race and ethnicity could not be obtained for 29 (14%) of the workers reported. Figure 2 identifies the distribution of workers with elevated blood lead levels by age group. Table 1 shows elevated blood lead levels by type of industry.

One of the US Public Health Service's Healthy People 2000 Objectives is the elimination of occupational exposures that result in blood lead levels over 25 mcg/dL. Increasing awareness by employers and employees of the sources of lead exposure in the workplace and methods for reducing worker exposure is essential for the future prevention of occupational lead poisoning. To assist employers in meeting these goals, TDH provides free worksite consultation. Reports of elevated blood lead levels are prioritized on the basis of the blood lead level and the presence of symptoms. If any of the following conditions are present, the worksite is considered high priority and is inspected by local or state health department staff to identify the source of lead exposures on the job:

- An employee's blood lead level is greater than 60 mcg/dL.
- An employee's blood lead level averages 50 mcg/dL over a six-month period.
- The individual exhibits symptoms of lead poisoning.

Industrial hygiene inspections measure lead levels in the air and examine work practices to assess additional opportunities for worker exposure. Based on these inspections, interventions to reduce worker exposure are suggested (changing work practices, worker education, etc.) and assistance in implementing interventions is offered.

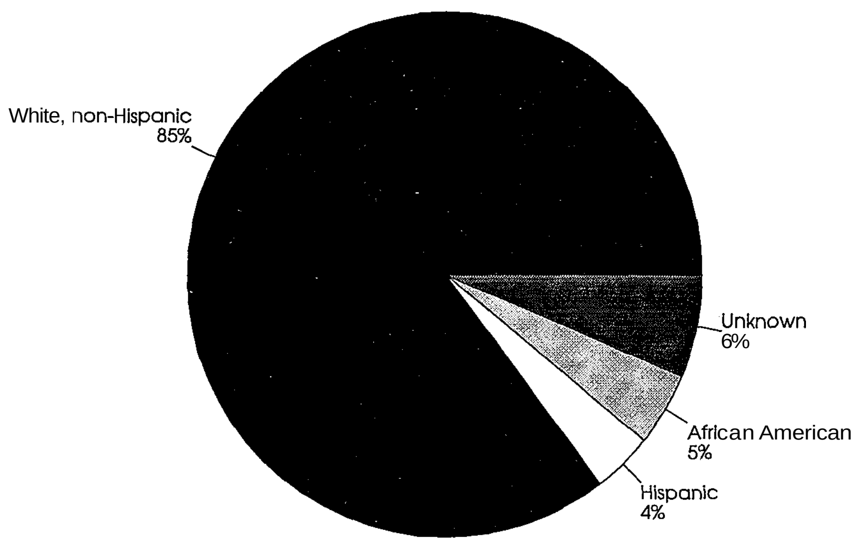
Another TDH prevention strategy is health care provider education. Workers with elevated blood lead levels can experience irritability, memory loss, headache, lassitude, arthralgia, decreased libido, myalgia, insomnia, paresthesia, abdominal pain, anorexia, nausea, and constipation. Acute encephalopathy may occur in adults with blood lead levels in excess of 150 mcg/dL. Many signs of lead toxicity are nonspecific, highlighting the importance of including occupational information in the medical history. Following is a report of an event showing the importance of prompt case reporting.

On April 26, 1994, a hospital emergency department physician notified a local health department (LHD) of an adult male patient with a blood lead level of 111 mcg/dL. The LHD promptly contacted TDH. The patient, admitted to the hospital for possible lead poisoning on April 2, complained of abdominal pain, vomiting, weight loss, severe constipation, and a headache. He also experienced memory loss, ringing in his ears, metallic taste in his mouth, stuttering, arthralgia, and discoloration of his gums. The LHD immediately conducted a patient interview. During the interview, the patient described a job in which he and seven other men sandblasted most of the interior surfaces of a 100-year-old five-story building between February 15 and March 30. He reported that tremendous quantities of dust were created during the sandblasting.

Over the next week, the LHD located and interviewed the other seven workers. One worker had visited an emergency room on March 23 but refused to be admitted. He returned to the same hospital on March 25 and stayed three days. A blood sample drawn on March 29 revealed a blood lead level of 245 mcg/dL. The patient was readmitted April 6. His primary complaint was constant epigastric abdominal pain that radiated to his back and worsened when he ate. His symptoms also included vomiting, weight loss, constipation, headache, fatigue, shortness of breath, and loose teeth. During the April 6 admission he had an elevated amylase level and was discharged April 10 with diagnoses of acute pancreatitis, acute gastroenteritis, and alcohol hepatitis. This patient was neither treated for nor advised that he had lead poisoning until he was contacted by the LHD in May.

Prior to LHD intervention, none of the other six workers had sought medical care. All were referred for diagnostic tests in early May. One worker, at the site for only a few days, had a blood lead level within the normal range. By May, the other five workers whose on-the-job exposures ranged from 4 to 6 weeks, had blood lead levels ranging from 47 to 93 mcg/dL. Because workers were not tested until five to six weeks after their exposure ended, their blood lead levels during and after the acute exposures may have been higher. All eight workers were referred to a university hospital for evaluation and follow up. The seven workers with blood lead levels in excess of 40 mcg/dL subsequently underwent chelation therapy.

Figure 3. Distribution of Asbestosis by Race and Ethnicity



All the workers reported that the sandblasting operation generated so much dust that workers in the same room were unable to see each other. Paint and dust samples collected on May 4 showed lead content in the paint and sandblasting residue was 1,900 mcg/g and 25,000 mcg/g, respectively. Dust from the floor and the interior surface of a window pane had lead contents of 75,000 mcg/ft² and 145,000 mcg/ft², respectively. By comparison, US Environmental Protection Agency-recommended acceptable levels after residential lead abatement are 100 mcg/ft² for uncarpeted floors and 500 mcg/ft² for window sills.

Because of unusual circumstances, the OSHA was notified. Several violations were found during the OSHA investigation, including the lack of worksite air monitoring. The workers had not received adequate training or protective equipment, nor did they have proper facilities for washing, changingclothes, or eating. Some workers wore only dust masks during the sandblasting process, and the employer had instructed workers to keep the windows closed. A Texas Workers' Compensation Commission investigation resulted in medical benefits paid to the workers.

This incident demonstrates that the potential for adult lead poisoning still exists and highlights gaps in knowledge of lead exposure and poisoning by employers, employees, and health care providers. The employer was either unaware of, or deliberately disregarded, the health hazards of sandblasting old buildings. The employees apparently did not know or question the potential

Figure 4. Distribution of Asbestosis by Age at Diagnosis

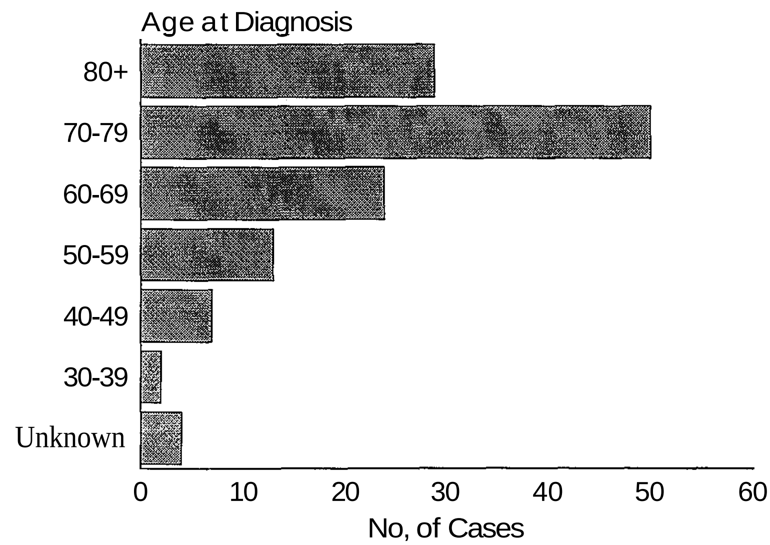


Table 2. Occupations Associated with silicosis

Farmer
Laborer
Mechanic
Painter
Rock Breaker/Drill Operator
Sand Blaster
Stone Polisher

for lead exposure given the working conditions. Although the index case for this cluster was eventually reported to the local health authorities, several earlier opportunities to report the index patient's case were missed. Earlier reporting would have resulted in quicker identification of the cluster of cases and prompt treatment of the other poisoned individuals.

Asbestosis

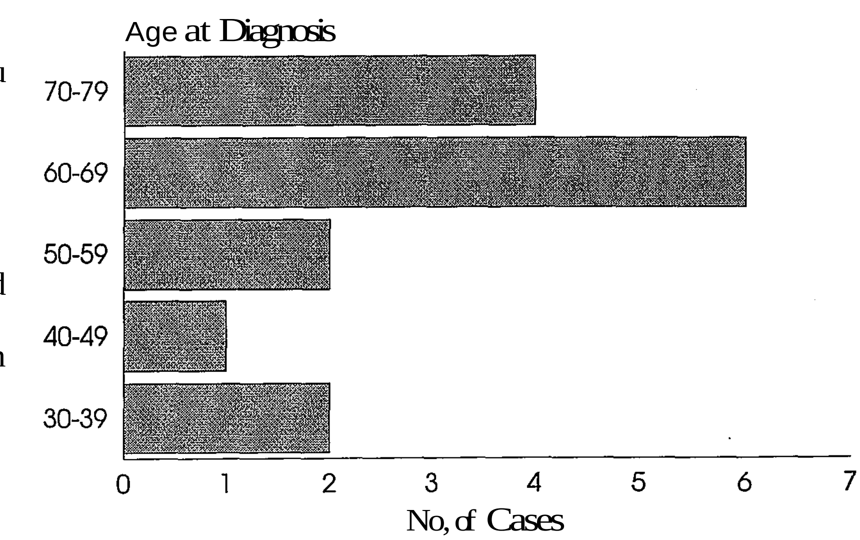
Of the 129 cases of asbestosis reported to TDH during 1994, 101 (78%) were identified by reviewing death certificates filed with the TDH Bureau of Vital Statistics. An additional 25 (19%) were reported by physicians, hospitals, and clinics. Three were obtained during hospital medical records review. Of the 129 reported individuals, 125 (97%) were male, and 4 (3%) were female. The distribution of patients by race/ethnicity is shown in Figure 3 and by age at diagnosis in Figure 4.

Silicosis

Fifteen cases of silicosis were reported in Texas during 1994. One individual was diagnosed with both silicosis and asbestosis. Another individual was diagnosed with silicosis and tuberculosis. As in past years, most reports of silicosis in Texas were identified during reviews of death certificates. Nine of the 15 (60%) individuals were identified from this review. Two (13%) reports were obtained from TDH medical records review at hospitals; four (27%) were reported by physicians directly to TDH or through the LHD.

Occupational information was available for 10 of the individuals. Table 2 lists the distribution types of occupations reported. Six (40%) workers with silicosis were white, non-Hispanic; six (40%) were white Hispanic; and three (20%) were of African American descent. Figure 5 shows the distribution by age at diagnosis.

Figure 5. Distribution of Silicosis by Age at Diagnosis



Noncommunicable Disease Epidemiology and Toxicology Division (512) 458-7269

Pertussis

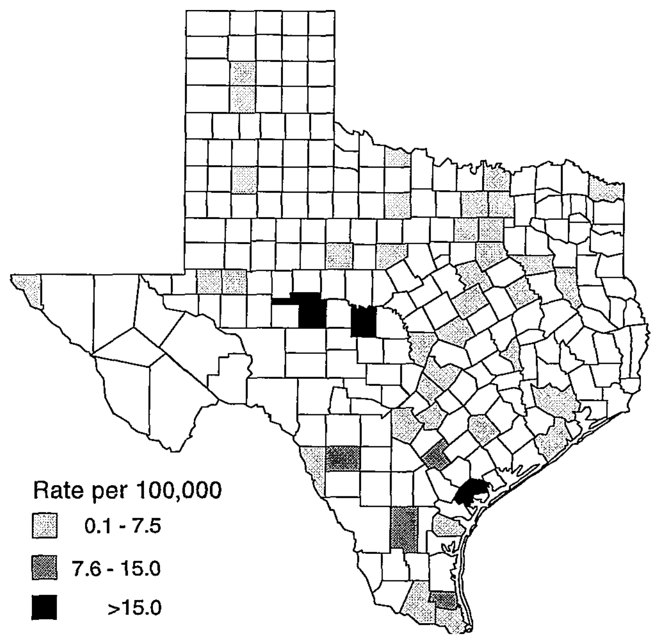
Pertussis is a highly contagious, upper respiratory illness with symptoms that can linger 6 to 10 weeks. As the disease progresses, the patient has bursts of numerous rapid coughs followed by a characteristic high-pitched whoop on inspiration. Infants are at highest risk of complications from pertussis. The most common complication and the cause of most pertussis-related deaths is secondary bacterial pneumonia. Prior to the availability of pertussis vaccine in the 1940s, over 200,000 cases of pertussis were reported nationally each year. With widespread use of the vaccine, incidence has decreased 99% to an average of approximately 3,000 cases reported nationally each year since 1980.

In 1994, 160 pertussis cases were reported from 43 counties in Texas, up 32% from the 121 cases reported the previous year. The total number of cases reported in Bexar, Dallas, Harris, Tom Green, and Travis counties accounted for nearly 50% of all cases. Incidence rates by county are shown in Figure 1. There were no deaths from pertussis in Texas in 1994. Nationally, 4,698 cases of pertussis were reported for 1994 (provisional data).

Pertussis cases are classified as confirmed or probable. A confirmed case of pertussis is a clinically compatible case that is laboratory confirmed (isolation of *Bordetella pertussis* from a clinical specimen), or is epidemiologically linked to a laboratory-confirmed case. Probable pertussis cases meet the Centers for Disease Control and Prevention (CDC) clinical case definition for pertussis, are not laboratory confirmed, and are not epidemiologically linked to a laboratory-confirmed case. Laboratory confirmation via *Bordetella pertussis* culture was made for 98 (61%) cases.

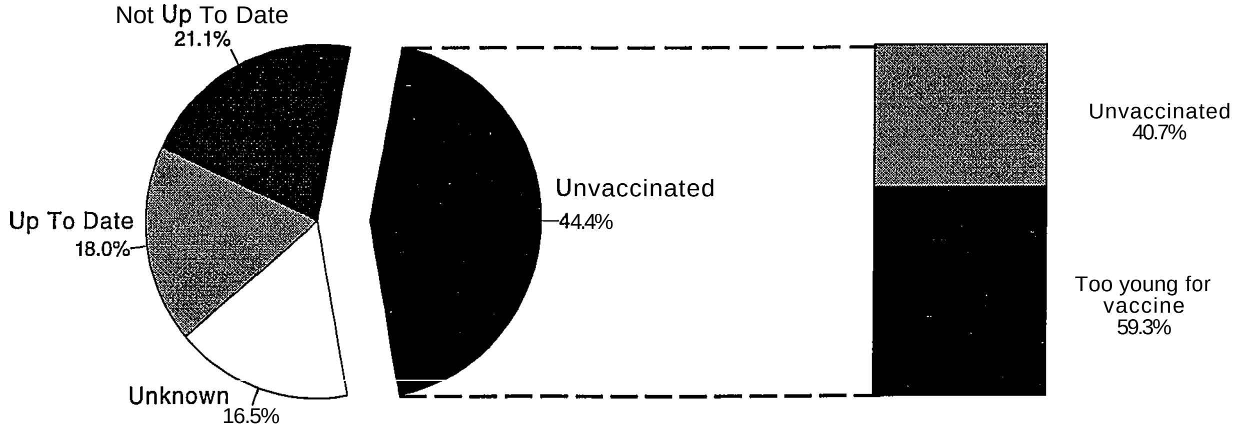
Over 80% of pertussis morbidity in Texas occurred in children under 5 years of age, and 66% occurred in infants younger than 12 months old. Age-specific incidence rates for pertussis were 33.4 per 100,000 for infants aged younger than 12 months, 2.0 per 100,000 for children 1 to 4 years of age, and 0.4 per 100,000 for children 5 to 9 years of age. Of the 106 cases occurring in infants under 12 months of age, 71 (67%) patients were hospitalized. Over half of the children 1 to 4 years of age were hospitalized. The proportion of infants hospitalized with pertussis or with related complications clearly demonstrates the severity of this disease. The race-specific incidence rate for pertussis was more than twice as high for Hispanics (1.46 per 100,000) as it was for non-Hispanic whites (0.69 per 100,000).

Figure 1. Pertussis by County



Of the 160 pertussis cases, 131 (82%) of the patients experienced paroxysms of coughing, 88 (55%) an inspiratory whoop, 94 (59%) vomiting, and 53 (33%) experienced apnea. Twenty-two (14%) had positive x-rays for pneumonia. None experienced seizures or encephalopathy. Two or more antibiotics are often prescribed for the treatment and control of pertussis, but erythromycin is the drug of choice for treating pertussis

Figure 2. Immunization Status of Pertussis Cases Occurring in Children Under Age 7



n=133

patients and preventing the spread of the disease to others. Erythromycin was used to treat 78% of reported cases in 1994.

Overall, 66% of children under 7 years of age who had pertussis in 1994 were either unvaccinated or not up-to-date. Of these 87 children, 59 (44%) had never been vaccinated. Among those who were unvaccinated, 35 (59%) were too young to have received vaccine (Figure 2). Twenty-eight (21%) of the 133 children under 7 years of age were not up-to-date on vaccination for their ages. Twenty-four (18%) of the children reported with pertussis were up-to-date on vaccination, and 1 (1%) had received the full series of five doses of vaccine.

The vaccination status was unknown for 22 (17%) of the 133 children under 7 years of age reported as having pertussis.

The low morbidity of pertussis in vaccinated populations attests to the effectiveness of the vaccine in disease prevention. According to CDC, a primary series of pertussis vaccine provides 70% to 90% protection against infection, particularly in the first several years following vaccination.

Immunization Division (512)458-7284

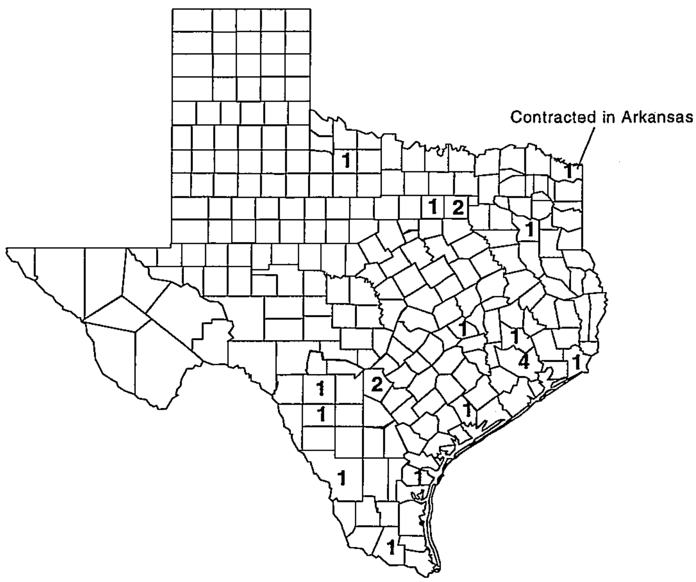
Primary Amebic Meningoencephalitis (PAM)

On July 21 a 13-year-old Hispanic boy was taken to the emergency room of a county hospital with high fever, headache, agitation, confusion, and hallucinations. His mother reported that he had been "his usual self" until about one week prior to admission, when he developed a fever and a productive cough. Despite these symptoms, the patient had maintained his usual activities until the day of admission when he developed a headache and his temperature increased. Signs and symptoms upon arrival at the hospital included a temperature of 102°F; tachycardia; and rapid, labored breathing, with some bibasilar rhonchi. His pupils were equal, round, and responsive to light; he had full eye movement and normal fundi. Some nuchal rigidity was noted. Within 45 minutes of arrival, he developed deep, labored breathing, and decerebrate posturing. He also became unable to follow any commands or respond to pain. He was intubated, hyperventilated, and treated for increased intracranial pressure.

His initial computed tomographic (CT) scan revealed no abnormalities. The opening pressure on a spinal tap was 21 centimeters. Yellowish to slightly greenish, cloudy cerebrospinal fluid (CSF) was obtained which showed 4,370 white blood cells (WBCs)/mL and 710 red blood cells (RBCs)/mL with a differential of 90% polymorphonuclear cells. There was a protein level of 300 mg/dL (normal: 15-40 mg/dL), and a glucose level of 4 mg/dL. CSF tests for viral, bacterial, and fungal pathogens were normal, and a toxicology screen was negative.

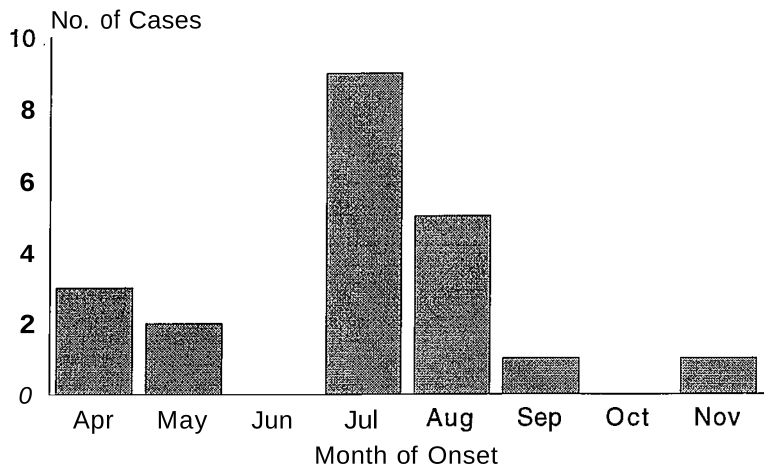
The patient's condition deteriorated to the extent that by July 23 his pupils were fixed and dilated. A right coronal ventriculostomy only transiently relieved the increased intracranial pressure. A second CT scan demonstrated marked cerebral edema and loss of normal subarachnoid cisterns. There was no evidence of any intracranial perfusion. The intracranial pressure remained elevated despite all medical efforts to reduce it. Clinical signs of brain death were evident when the patient was taken off the ventilator for two minutes. The family granted permission to discontinue life support, and the patient died the evening of July 23. *Naegleria fowleri,* one of three amebic species found to cause primary amebic meningoencephalitis (PAM) in Texas, was identified in postmortem CSF and confirmed by the Texas Department of Health (TDH) Laboratory.

Figure 1. Counties Reporting Primary Amebic Meningoencephalitis, 1972-1994



The patient lived in a colonia across and slightly downstream from a site where a large Mexican city drains raw sewage into the Rio Grande River. The colonia has its own sewage treatment plant, which had recently been taken over by the county due to noncompliance with state laws governing the operation of sewage treatment plants. Investigation of the boy's activities the week prior to onset of symptoms revealed that all of his leisure time was spent with the same dozen or so young residents of the colonia. This group swam almost daily in the river, as well as in the water treatment plant settling pond. A plant operator had observed them diving off a platform into the settling pond on many occasions. None of the boy's friends had experienced any similar symptoms.

Figure 2. Primary Amebic Meningoencephalitis, 1972-1994



PAM is a fulminant, purulent infection that involves the olfactory bulbs and cortical gray matter throughout the brain. The disease is nearly always fatal. PAM is not transmissible from person to person. In Texas the etiologic agent is usually *N. fowleri* (15 of 21 cases), although *Acanthameba* and *Leptomyxid* species have also been implicated. *N. fowleri* is a free-living ameba which is found ubiquitously in soil worldwide. It thrives in warm, fresh water, particularly if the water is stagnant or slow moving. Raw sewage present in the water promotes growth of the organism, since a major food source for the ameba is coliform bacteria. In Texas the organism is likely to be present in nearly every body of standing water from spring through fall.

Although exposure to the organism is very common, the disease is rare. Subclinical infection appears to be common, since *N. fowleri* has been isolated from the noses of asymptomatic children. The majority of adults have neutralizing antibodies against *Naegleria* while infants do not. Since 1972 Texas has had 21 reported cases of PAM (Figure 1). In all but one case, onset was between April and September (Figure 2). One person had onset in November, but the exposure was thought to have occurred in Mexico. The average age of the patients is 13 years, with a range of 3 to 37 years. All but one patient have died, following illnesses that averaged 11 days. Most patients had exposure to open fresh water within a few days prior to onset of symptoms.

PAM occurs when amebae invade the brain through the cribriform plate. Prior to illness, most patients are young and in good health, with no apparent predisposing factors. The usual incubation period for PAM is 3 to 7 days; no recorded incubation periods have been longer than 14 days. The disease typically begins with alterations in taste or smell, rapidly followed by headache, fever, nausea, and vomiting. Meningismus is frequent, and coma and death ensue within days. A diagnosis of PAM should be suspected in patients presenting with purulent meningoencephalitis from spring through fall, and who have no bacteria seen in the CSF.

Factors predisposing to infection are not known, but it is postulated that high risk activities include deep diving or jumping into water without plugging the nose. These activities allow water to be forced into the nose under pressure. In some cases there has been a history of recent head trauma, suggesting that structural abnormalities of the cribriform plate may sometimes play a role.

*Infectious Disease Epidemiology and Surveillance Division (512)*458-7676

Rabies Death in South Texas

A 14-year-old boy from Edinburg, Texas, died of rabies in a San Antonio hospital on November 27, 1994. On November 12 he had begun complaining of tingling in his back, neck, and shoulders. At that time he was noted to be agitated and to have a slight personality change. The following day, the boy was taken to a hospital emergency room (ER) with sore throat, dysuria, and myalgias; no fever was noted. He was treated with amoxicillin for pharyngitis, advised to take acetaminophen or ibuprofen for his discomfort, and discharged from the ER that same day.

The next day, the boy expressed a feeling of impending doom. He was noted to be alternately withdrawn and hyperactive and to have myoclonic jerks of his upper extremities and jaw. He was taken to his physician's office by ambulance and then to the ER for admission to the hospital.

On admission the patient was hyperventilating, incoherent, and hallucinating; his condition deteriorated rapidly. He required suctioning for oral secretions. The boy was transferred to the pediatric intensive care unit with a temperature of 104°F, tachycardia, and blood pressure of 96/46 mm Hg. He was intubated and pharmacologically paralyzed. The patient was treated for meningitis, but encephalitis and brain abscess were also considered. In addition to cefotaxime, he was given metronidozole and acyclovir.

Within eight hours of admission, the patient was transferred by air ambulance to a San Antonio tertiary care center, where drug intoxication with the herb yohimbe was suspected but subsequently ruled out. Over the next several days, the boy had fluctuating fever and cardiovascular instability requiring both pressors and vasodilators. On November 16, he developed massive rhabdomyolysis and renal failure requiring dialysis.

Rabies was first suspected on November 23, so serum and cerebrospinal fluid (CSF) were obtained for antibody titers. Saliva and a skin biopsy from his neck were collected for testing. His vital signs became more stable for a short time, but on November 25 he had a pulmonary hemorrhage. His bleeding time was greater than 13 minutes, though prothrombin time, partial thromboplastin time, and platelet counts were normal. On November 27 the boy's condition deteriorated further, and he died that afternoon.

Direct fluorescence antibody test results from the Centers for Disease Control and Prevention showed that both the skin biopsy and the saliva sample were positive, confirming the diagnosis of rabies. Laboratory analysis by polymerase chain reaction indicated that the rabies strain involved was the Mexican (urban) dog virus strain.

The boy lived in Hidalgo County, an area where animal rabies cases have been reported since 1988. However, activity in this county was low in 1994, with only two cases reported: a rabid bat in August and a rabid coyote in October. In this case, no history of an animal bite or scratch could be elicited. Family members did report that the patient had been given a 3-week-old puppy in late September 1994. The puppy developed a diarrheal illness at 5 weeks of age and died one week later. It was too young to have been immunized and was not tested for rabies. The mother dog (vaccinated against rabies in July) and four littermates remained healthy. None of the dogs were reported to have had contact with any wild or domestic animals from outside the household.

Patient and puppy contacts were evaluated for postexposure prophylaxis. Due to close contact with the patient or his secretions, rabies postexposure prophylaxis was administered to 5 family members, 8 friends, and 38 healthcare workers. Upon request, 3 additional persons who had come in contact with the puppy received postexposure prophylaxis.

Infectious Disease Epidemiology and Surveillance Division (512)458-7676

Rabies in Animals

Rabies is *a* viral zoonosis affecting the central nervous system. The mode of transmission is by saliva containing rabies virus being introduced into an opening in the skin or through mucous membranes, usually via the bite of a rabid animal. Animals considered to be high-risk for transmitting the rabies virus include bats, coyotes, foxes, raccoons, and skunks.

Figure 1. Confirmed Cases of Animal Rabies, 1981-1994

In 1994,590 (5%) of 11,834 animal specimens tested by the Texas Department of Health were positive for rabies. This number of confirmed cases, a 10% increase over the 533 cases reported in 1993, is the highest yearly total for Texas since 1984 (Figure 1).

Rabies in wildlife accounted for 79% of the cases throughout the state. Foxes were the primary reservoir, responsible for 24% of all positive cases. During 1994, 144 foxes tested positive for rabies compared with 42 in 1993. Of all foxes tested for rabies, 52% tested positive in 1994 versus 28% in 1993. Skunks and bats, the primary reservoirs in 1993, had fewer cases in 1994. During 1994, 78 skunks tested positive for rabies compared with 151 rabid skunks in 1993. Of all skunks tested for rabies, 17% were positive in 1994, and 25% were positive in 1993. During 1994, 94 bats were positive for rabies compared with 150 in 1993. Of all bats tested for rabies, 13% were positive in 1994, and 18% were positive in 1993.

Rabies in domestic animals (21% of the positive cases) continues to be a concern because rabid domestic animals are more likely to come into

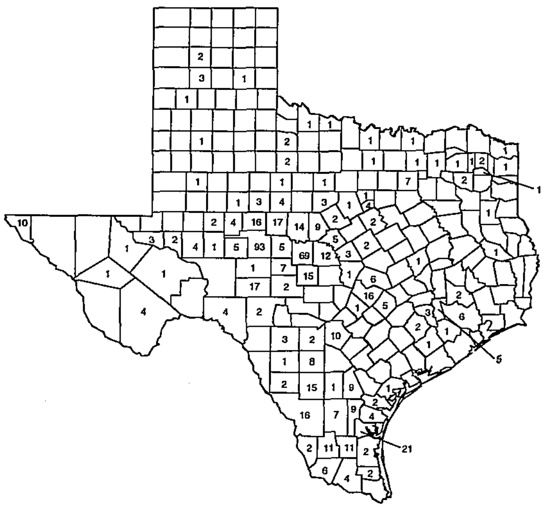
Table 1. Confirmed Rabies Cases in Domestic Animal Species

Species	1993	1994
Dogs	54	53
Cats	21	27
Cows	11	21
Horses	6	7
Goats	1	10
Sheep	1	2
Donkeys	1	0
Rabbits	0	1
Total	95	121

Table 2. Confirmed Rabies Cases in Wild Animal Species

Species	1993	1994
Skunks	151	78
Bats	150	94
Foxes	42	144
Coyotes	71	77
Raccoons	20	68
Other	4	8
Total	438	469

Figure 2. Confirmed Cases of Animal Rabies (all species) by County



contact with humans than are rabid wildlife. Tables 1 and 2 compare laboratory-confirmed domestic and wildlife rabies cases for the various animal species for 1993 and 1994. In 1993, September had the highest count due to the increase in rabid bats reported during that month. In 1994, the highest number of cases occurred in March and April, with foxes being the predominant rabid species. Rabies cases in wild or domestic animals were reported in 102 Texas counties (Figure 2).

The gray fox rabies epizootic, which began in 1988 in West Texas, expanded in a northeasterly direction with the addition of 13 counties that did not have previously recorded cases of the gray fox strain of rabies virus. There was considerable spillover of this strain into the raccoon population; the number of rabid raccoons increased from 20 in 1993 to 68 in 1994. Tom Green County (93 cases) and McCulloch County (69 cases), both located in this epizootic area, had the highest number of rabies cases per county statewide.

The South Texas canine rabies epizootic, which also began in 1988, continued through 1994; 74 coyotes and 32 dogs tested positive for rabies in the epizootic area. Ninety-six percent of all rabid coyotes reported and 60% of all rabid dogs reported were from the following 16 South Texas counties: Brooks, Dimmit, Duval, Frio, Hidalgo, Jim Hogg, Jim Wells, Kenedy, Kleberg, La Salle, Live Oak, McMullen, Starr, Webb, Willacy, and Zapata.

In response to the epizootics, the Oral Rabies Vaccination Projects (ORVP) for coyotes in South Texas and gray foxes in West-Central Texas were initiated. The goals of ORVP are to create zones of vaccinated coyotes and foxes along the leading edges of the epizootics. These projects target wild animals because they are the primary reservoirs for rabies. Immunization will be accomplished by aerial distribution of a bait containing rabies vaccine.

Zoonosis Control Division (512) 458-7255

Retrospective Immunization Survey

Introduction

The Texas Department of Health (TDH) conducts the Texas Retrospective Immunization Survey (TRIS) to assess the immunization levels of the current public school kindergarten cohort at the time they were 24 months of age. By providing trend information on childhood immunization levels, the TRIS is a useful tool for monitoring progress in the immunization coverage levels of preschool-age children. For the purposes of this survey, a child is considered adequately immunized at 24 months of age if he/she has received at least 4 doses of diphtheria and tetanus toxoids and pertussis (DTP) vaccine, 3 doses of oral poliomyelitis (OPV) vaccine, and 1 dose of measles, mumps, and rubella (MMR) vaccine. This series of vaccines is also referred to as the 4-3-1 schedule. Hepatitis B vaccine (HBV) and *Haemophilus influenzae* type b conjugate vaccine (HibCV) are not included in this survey.

Background

Historically, surveys have reported low immunization levels for preschool-age children in Texas. A 1991 nine-city survey, conducted by the Centers for Disease Control and Prevention (CDC), indicated the proportion of kindergarten children who were adequately immunized by their second birthday ranged from 10% in Houston to 42% in El Paso.[1] The National Health Interview Survey, conducted by the National Center for Health Statistics and the National Immunization Program of CDC, assessed the immunization levels of children 19 to 35 months of age in 1991 and 1992 at 37.0% and 55.3%, respectively, for the 4-3-1 schedule.[2] The 1993 TRIS assessed immunization levels of public school kindergarten students who were two years old in the 1989190 school year. Results by public health region (PHR) indicated that the proportion of adequately immunized children ranged from 31.0% in PHR 4 to 51.7% in PHR 6; the weighted state level was 41.6%. In a CDC listing of the country's immunization levels, the 1993 TRIS result of 43.1% (excluding data from the city of Houston and from Bexar County) placed Texas last among all states for 4-3-1 coverage at 24 months of age.[3]

Methodology

The retrospective survey design offers several advantages over other survey methodologies. Childhood immunization records are required for school entry. Records are available from all providers, and date-specific dose information is provided in written form, eliminating reliance on parental recall. The disadvantage of the retrospective survey, however, is that the data reflect the immunization levels at age 24 months of the current public school kindergarten cohort (ie, three years prior to the survey date) rather than the levels of the current cohort of children aged 24 months.

The CDC two-stage cluster survey method was used to randomly select 35 schools per PHR (stage one) and 25 students per school (stage two) in each of the 11 PHRs.[4] From a 9,625 record sample, 9,497 records were actually reviewed, yielding a 98.7% completion rate. Two different data analyses were performed. One analysis used PHR 6 and PHR 8 data, exclusive of the Houston Project schools and Bexar County schools, respectively.[5] (Houston Project schools were selected schools in the Houston and Spring Branch school districts.) The other analysis used all data, with no exclusions.

Immunization levels from each PHR were weighted by that region's proportion of the state kindergarten population, according to *Texas Education Agency 1993-94 Enrollment by Grade* data, to calculate state levels. The state kindergarten population for the 1993194 school year was 268,646; the state kindergarten population excluding the Houston Project and Bexar County schools was 232,273.

Results

The following tables summarize the retrospective survey results for the percent of kindergarten students immunized by age two, by PHR and vaccine category.

Table 1. Immunization Levels By PHR and Vaccine Category

PHR	4-3-1	3-3-1	4 DTP	3 DTP	3 POLIO	1 MMR
1	46.9%	68.4%	48.7%	78.8%	76.0%	77.8%
2	43.6	66.0	45.6	77.6	72.8	76.3
3	48.1	62.7	50.0	76.5	68.2	76.0
4	42.4	59.8	43.5	73.1	67.3	73.0
5	37.9	59.7	39.7	74.1	69.5	71.7
6	35.0	58.5	38.5	75.1	69.5	72.0
7	45.2	66.1	46.5	77.7	75.1	76.0
8	44.8	71.1	47.4	83.4	82.7	77.1
9	48.1	66.1	49.5	79.1	74.9	75.3
10	53.8	79.2	55.8	88.3	87.5	84.2
11	45.6	67.5	49.1	81.7	80.8	75.4
STATE*	**43.6%**	**64.3%**	**46.0%**	**78.0%**	**73.4%**	**75.2%**

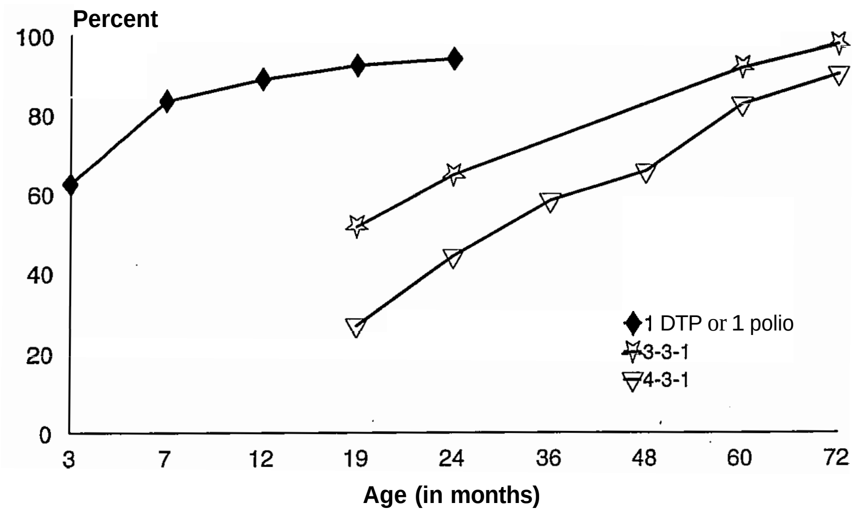
*weighted state levels

Table 2. Immunization Levels by PHR and Vaccine Category, Excluding Houston Project (PHR 6) and Bexar County (PHR 8) Schools.

PHR	4-3-1	3-3-1	4 DTP	3DTP	3 POLIO	1 MMR
1	46.9%	68.4%	48.7%	78.8%	76.0%	77.8%
2	43.6	66.0	45.6	77.6	72.8	76.3
3	48.1	62.7	50.0	76.5	68.2	76.0
4	42.4	59.8	43.5	73.1	67.3	73.0
5	37.9	59.7	39.7	74.1	69.5	71.7
6	**41.2**	**60.9**	**44.9**	**77.4**	**71.1**	**74.8**
7	45.2	66.1	46.5	77.7	75.1	76.0
8	**50.2**	**70.3**	**54.3**	**81.6**	**81.6**	**78.5**
9	48.1	66.1	49.5	79.1	74.9	75.3
10	53.8	79.2	55.8	88.3	87.5	84.2
11	45.6	67.5	49.1	81.7	80.8	75.4
STATE*	**45.6%**	**64.6%**	**48.0%**	**78.1%**	**73.2%**	**75.9%**

*weighted state levels

Figure 1. ImmunizationCoverage Rates by Age and Vaccine*



'Survey conducted during '93-'94 school year. Rates reflect the percent of kindergarten children immunized with selected vaccines by selected ages; the rates are non-weighted state rates. 3-3-1 refers to 3 DTP, 3 polio and 1 MMR; 4-3-1 refers to 4 DTP, 3 polio and 1 MMR.

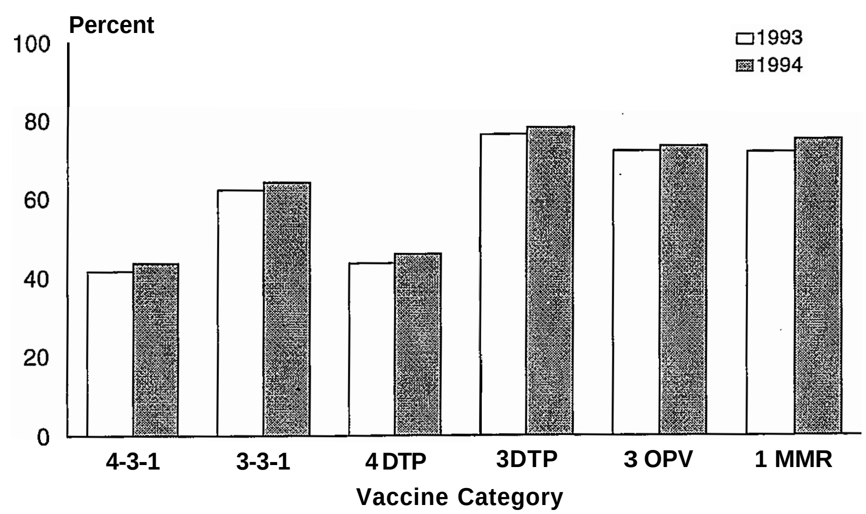
The trend in vaccination levels by selected ages and vaccine categories demonstrated in Figure 1 reaffirms the fact that preschool-age children are not receiving vaccinations according to the recommended immunization schedule. Universal compliance with the recommended schedule by parents and providers would elicit an immunization level of 100% at each age marker.

Figure 2 compares the 1993 and 1994 TRIS results, illustrating the immunization levels of the school year.1989-90 and 1990-91 two-year-old cohorts, respectively. The 1994 TRIS results show an increase in

Discussion

The 1994 TRIS documented that levels of adequate immunization for the school year 1990191 two-year-old cohort ranged from a low of 35.0% in PHR 6 to a high of 53.8% in PHR 10. The addition of the fourth dose of DTP vaccine to the required school entry immunization schedule of three doses of DTP vaccine, three doses of OPV, and 1 dose of MMR vaccine (3-3-1) results in a drop of 20.7 percentage points from the 3-3-1 level (64.3%) to the 4-3-1 level (43.6%). This drop represents a 32.2% decrease statewide in coverage levels between the 3-3-1 and 4-3-1 series.

Figure 2. Percent of Kindergarten Students Immunized by Age Two, by Vaccine Category: 1993 and 1994 RetrospectiveSurveys*



'The 1993 and 1994 retrospective surveys demonstrate immunization levels of kindergarten enterers who were two years old in school years 1980-90 and 1990-91, respectively. Immunization levels represent weighted state levels.

immunization levels for all vaccine categories. The greatest percent gain (5.5%) over the 1993 TRIS levels was in the 4 DTP vaccine category.

The 1993 TRIS documented that, statewide, 41.6% of kindergarten students had been adequately immunized by age two. In comparison, the 1994 TRIS statewide immunization level of 43.6% exhibits a 4.8% gain over the previous year's result.

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Immunization Division (512)458-7284

Congenital Rubella Syndrome

Congenital rubella syndrome (CRS) occurs in the developing fetus as a result of maternal rubella (commonly referred to as "German measles"). The disease can have particularly devastating consequences if maternal rubella infection occurs within the first trimester of pregnancy. Up to 85% of infants born to mothers infected with rubella in the first trimester can be affected by CRS. Although infected fetuses can survive to full term, they are at significant risk for intrauterine death and spontaneous abortion. Those who survive are usually afflicted with severe congenital anomalies. Ophthalmologic, cardiac, auditory, and neurologic defects are most commonly associated with CRS. Infants with CRS are also frequently growth retarded and are very likely to suffer from radiolucent bone disease, hepatosplenomegaly, thrombocytopenia, jaundice, and purple skin lesions which take on the appearance of a "blueberry muffin-type" rash.

Infants born with CRS also pose a threat to public health since some continue to shed the rubella virus in nasopharyngeal secretions and urine for a year or more and can transmit rubella infection to susceptible contacts. Therefore, infants with CRS are considered contagious until they are 1 year of age, unless nasopharyngeal and urine cultures are repeatedly negative for rubella virus.

Following licensure of the rubella vaccine in 1969, the incidence of CRS steadily declined throughout the United States. Reported cases of rubella (630) and CRS (0) had declined to such a low point by 1985 that the Centers for Disease Control and Prevention declared the US on the verge of eliminating both diseases.[1,2] Following a total of zero cases of CRS reported in 1985, 47 were reported in 1991.[2] There also has been a gradual (albeit minimal) return of CRS to Texas during the 1990s. Overall, six cases of CRS were reported to the Texas Department of Health (TDH) from 1990 through 1992. The proximity of Texas to Mexico poses a special problem since that country has only recently initiated universal vaccination against rubella.

One case of CRS was reported to TDH in 1994. The patient was a male infant born to a 19-year-old woman in an El Paso County hospital. Due to detected fetal distress and presence of meconium, the baby boy was delivered two weeks early via cesarean section. At the time of birth, he possessed a "blueberry muffin-type" rash and cloudy corneas in both eyes (normally indicative of cataracts). He was a low birth weight infant (1.994 kg/4.4 Ibs), and his length and head circumference measurements placed him in the 26th and 10th percentiles, respectively. Attending staff diagnosed the baby with classic CRS complications: patent ductus arteriosus, patent foramen ovale, leukopenia, mitral regurgitation, tricuspid regurgitation, thrombocytopenia, and radiolucent bone disease. Serologic confirmation of CRS was secured through testing at the TDH Bureau of Laboratories.

Case investigation revealed that the mother was a Mexican national and resident of Juarez, Chihuahua. Her medical history included no prior rubella vaccination or rubella screening, one live birth, and no prenatal care during the most recent pregnancy. She did not report any history of congenital defects within the family. The mother said that during the second month of pregnancy' she was in contact with a relative infected with rubella. Following this exposure, the mother developed symptoms (eg, rash, arthritis, and fever) that met the rubella case definition.

The infant was discharged from the hospital seven days after delivery. Upon release from the hospital, this CRS patient retained cloudiness in both corneas but showed no further deterioration in cardiac conditions. In the months following his birth, he was repeatedly hospitalized for failure to thrive, poor nutritional intake, anemia, possible sepsis, and several rashes.

Several strategies for eliminating CRS are currently being implemented in Texas. Proof of at least one dose of rubella-containing vaccine administered on or after the first birthday is required for admission into all schools and child-care facilities in Texas. Women of childbearing age who use public health clinics for certain services, such as family planning and maternal health, are screened for rubella susceptibility. Those who test negative for rubella antibodies are targeted for vaccination as rapidly as medically advisable.

These efforts have contributed to lowering CRS morbidity greatly, but much more can still be done. For example, physicians bften refrain from vaccinating women in the postpartum period to prevent joint pain in the mother and rubella infection in the newborn (via the mother's breast milk). However, recent studies have shown the risk of these complications to be insignificant.' Through education efforts targeted at increasing general awareness of CRS and dispelling the misconceptions held by both the public and the health care establishment, more women could be vaccinated against rubella and CRS morbidity could be lowered even further.

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Immunization Division (512) 458-7284

Rubella Infections

Rubella (also referred to as "German measles") is usually a mild illness characterized by maculopapular rash and low-grade fever. Lymphadenopathy and arthritis or arthralgia usually precede the onset of rash by 5 to 7 days. In children, rash is usually the first manifestation of rubella but adults may experience a 1 to 5 day prodome which includes a low-grade fever, headache, malaise, and upper respiratory symptoms. Asymptomatic infections can occur in 25% to 50% of all rubella cases. The rubella virus is transmitted chiefly through direct or droplet contact with nasopharyngeal secretions of infected persons. The incubation period ranges from 14 to 21 days. Maximum communicability occurs a few days before to seven days after rash onset.

Arthralgia and arthritis may be common in adults with rubella. Encephalitis and thrombocytopenia can occur, but are rare. The most serious public health hazard presented by rubella is its ability to infect and damage the unborn fetus, particularly if maternal rubella infection occurs within the first trimester of pregnancy. Congenital rubella syndrome (CRS), causing severe malformation of the fetus, can occur in 85% of all fetuses infected during the first trimester. A small proportion of infected fetuses die in utero or are spontaneously aborted.

Licensure of the rubella vaccine in 1969 and its subsequent use in universal immunization campaigns have reduced the occurrence of rubella by approximately 99%. A disease which had previously been considered a childhood illness, rubella in the vaccine era mainly preys upon young, unvaccinated adults. Small outbreaks of rubella in the early 1990s provided evidence of resurging rubella morbidity.' Texas morbidity proved to be no exception to the trend, as statewide totals for reported rubella cases jumped from an historic low of only 5 in 1987 to 99 in 1990.

A renewed commitment to vaccinating Texans against vaccine-preventable diseases was reflected in the 1994 total of nine confirmed rubella cases statewide. This number represented a 59% drop from the 1993 total of 22 reported cases. Occurrence of rubella followed a seasonal pattern, as eight of nine cases were reported in March and April.

Geographically, the cases were dispersed throughout the state, with two epidemiologically linked cases in Sutton County and the remaining seven cases distributed among six counties. Of these nine cases, 4 (44%) were classified as indigenous, with exposure having occurred within Texas. The remaining 5 *(55%)* were imported, with exposure occurring outside of Texas: one out-of-state importation from New Mexico and four international importations from Mexico. Six of the nine patients were unvaccinated for rubella. Vaccination status was unknown for three patients. No rubella-related hospitalizations or complications were reported for 1994.

Females comprised 7 (78%) of all rubella cases reported. Hispanics accounted for 6 (67%) of all cases. In contrast, Hispanics comprised only 28% of the state population. Non-Hispanic whites accounted for the remaining rubella morbidity. Rubella cases were equally distributed among several age groups. Two cases apiece were reported for the following age groups: 1 to 4, 5 to 9, 15 to 19, and 30 to 39 years of age. One case was reported for those aged 40 to 49 years. Median age at time of infection was 18 years.

The Texas Department of Health (TDH) has adopted a multi-dimensional approach in reducing rubella morbidity. During the 1970s, TDH mandated that all children receive one dose of rubella vaccine prior to admission to a Texas school or child-care facility. As of 1994, compliance with that requirement was calculated in excess of 99% for children enrolled in Texas public schools.[2] In the early 1990s, TDH initiated a public health clinic-based program with the purpose of identifying women of childbearing age who are at risk for rubella and targeting that population for rubella vaccination. Since its inception, the program has succeeded in vaccinating thousands of at-risk women. However, continuing rubella morbidity proves that efforts to maintain high immunization coverage levels must continue.

References

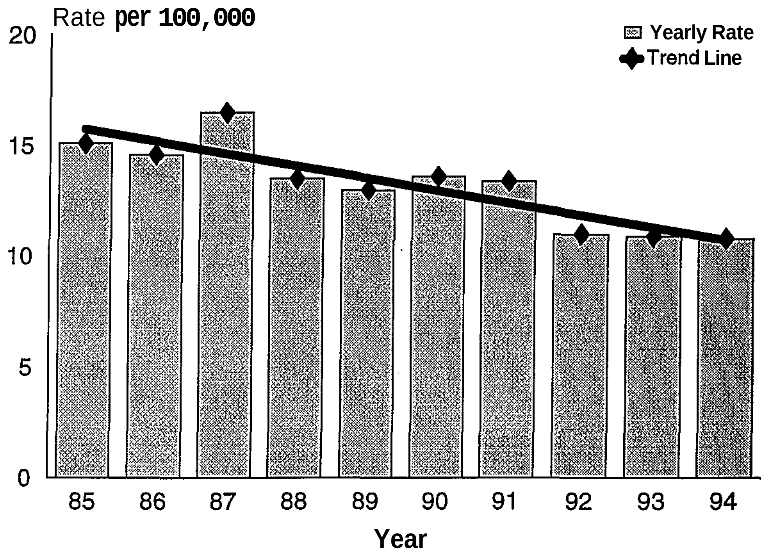
1. Lee SH, Donnell PE, Frederick PD, and Mascola L. Resurgence of congenital rubella syndrome in the 1990s. JAMA, 1992;267:2616-2620.
2. Texas Department of Health. Texas public school immunization report for 1993-94. Austin, Texas: Texas Department of Health, 1994.

Immunization Division (512) 458-7284

Salmonellosis

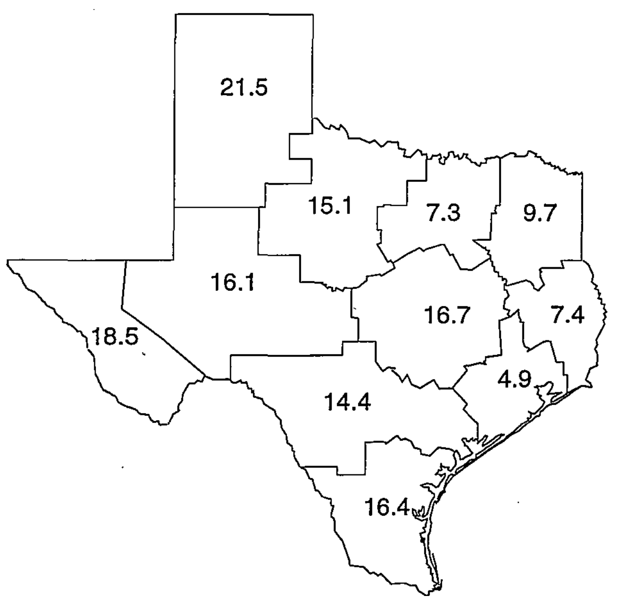
Reported cases of salmonellosis in Texas numbered 1,983 in 1994. The annual statewide incidence rate was 10.8 cases per 100,000 population, continuing a downward trend of salmonellosis rates that began in the late 1980s (Figure 1). The geographic distribution of salmonellosis by public health region is shown in Figure 2. The actual numbers of cases in individual counties and their corresponding incidence rates are provided in the Regional Statistical Summaries Section of this report.

Figure 1. Salmonellosis Rates 1985-1994



Patients in 45% of all cases were children five years of age and under. Their incidence rate of 51.8 cases per 100,000 population (an increase of more than 145% over 1993) was the highest of any age group. The incidence of salmonellosis was higher among Hispanics (14.1 per 100,000) than among whites (6.6) or African Americans (6.2). Compared with the 1993 incidence rates, those of 1994 decreased for Hispanics, and increased slightly for African Americans and whites.

Figure 2. Salmonellosis Rates per 100,000 by Public Health Region

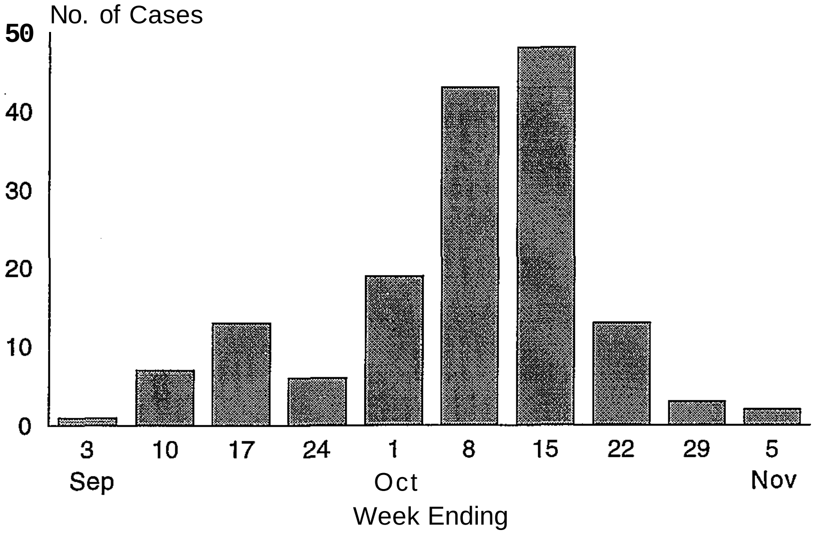


The species of the infecting organism was identified and reported for 1,127 (56.8%) of the cases: 21.4% were Salmonella *typhimurium*, 11.4% were S. *newport*, and 6.7% were S. enteritidis.

Only one salmonellosis outbreak, which was part of a nationwide outbreak associated with Schwan's ice cream products, was reported to the Infectious Disease Epidemiology and Surveillance Division in 1994. The Minnesota Department of Health notified other state health departments in early October that an investigation had identified an association between the consumption of Schwan's ice cream and infection. Schwan's Sales Enterprises of Marshall, Minnesota, had issued a recall of the ice cream products produced prior to October 7, 1994.

The Infectious Disease Epidemiology and Surveillance Division (IDEAS) reviewed its reportable disease database to identify reported cases of culture-confirmed S. enteritidis. Each patient was contacted to determine if he or she had consumed Schwan's Ice Cream; none had.

Figure 3. Onset Dates for Salmonellosis Cases Associated with Consumption of Schwan's Ice Cream Products



Schwan's ice cream products are distributed from more than 40 locations throughout Texas. Schwan's Sales Enterprises published a 1-800 number for their clients to use to report illness or to obtain information. IDEAS obtained a listing of all persons with Texas addresses who called this 1-800 number and asked local health departments and regional field offices to investigate each report of diarrheal illness associated with consumption of Schwan's products. IDEAS defined a case-patient as an individual with a history of consuming any of the implicated Schwan's products who also had either a culture-confirmed case of salmonellosis or a diarrheal illness (either bloody diarrhea, or uncomplicated diarrhea with vomiting and/or cramps) with onset between September 1 and November 5, 1995. Statewide, 155 individuals met this case definition. Four cases were culture confirmed. Onset dates ranged from early September through late October, with the majority (68%) reporting onset in the first two weeks of October (Figure 3). The ages of those reporting illness ranged from 1 to 81 years with the highest percentage in those aged 5 to 9 years (15%). Six ice cream samples were collected, and none were positive for *S. enteritidis.* No hospitalizations and no deaths were reported in this outbreak.

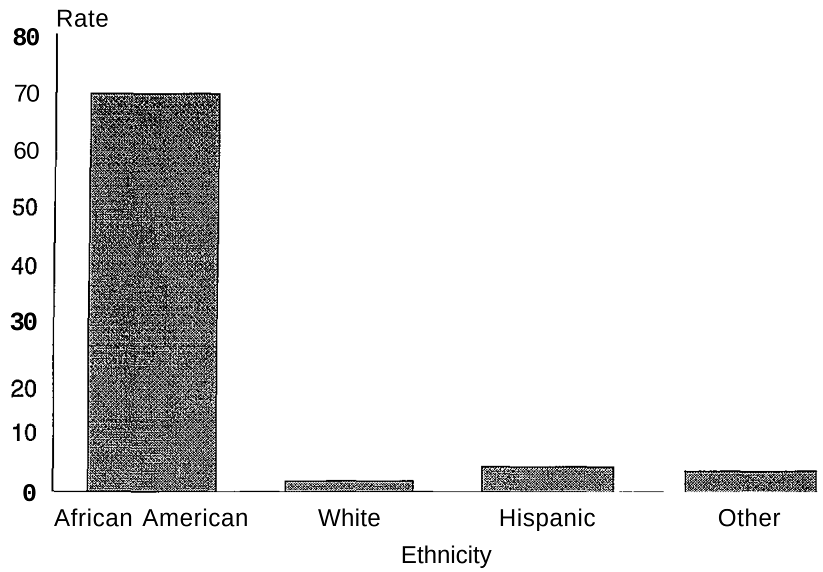
Infectious Disease Epidemiology and Surveillance Division (512) 458-7676

Sexually Transmitted Diseases

Primary and Secondary Syphilis

Caused by the spirochete, Treponema **pallidum,** acute syphilis is characterized clinically by primary lesions followed by secondary eruption involving the skin and mucous membranes. Untreated syphilis progresses into a chronic disease with long periods of latency. Primary and secondary (P&S) syphilis cases reported in Texas numbered 1,913 in 1994, a 24% decrease from 1993. This decrease continues a decline in annual reported syphilis cases since 1991, the year the greatest number of cases were reported.

Figure 1. Primary and Secondary Syphilis Case Rates by Ethnicity (per 100,000 Population)



The ethnic composition of reported P&S syphilis cases in 1994 was 77% African American, 12% Hispanic, 10% white, and 1% other or unknown ethnic group. The case rate for P&S syphilis among African Americans was 69.7 per 100,000 population. Although 26% lower than the case rate of 94 in 1993, this rate is extremely high compared with the rates for other ethnic groups (Figure 1). Rates were 4.4 for Hispanics, 1.9 for whites, and 3.8 for other ethnic groups. African American women aged 15 to 24 years had the highest rate (202). The rate for African American men aged 15 to 19 years was 65; it was 171 for those aged 20 to 24 years. The extremely high case rates for both genders indicate the severity of the problem of P&S syphilis among young African Americans in Texas.

The year 1994 was the first that more women than men were reported with P&S syphilis: 992 cases among women (52%) versus 920 cases among men. The case rate for women was also higher than that for men (10.7 versus 10.2). The apparent higher incidence among women may be due in part to increased efforts to prevent congenital syphilis in newborns by diagnosing and treating syphilis in pregnant women.

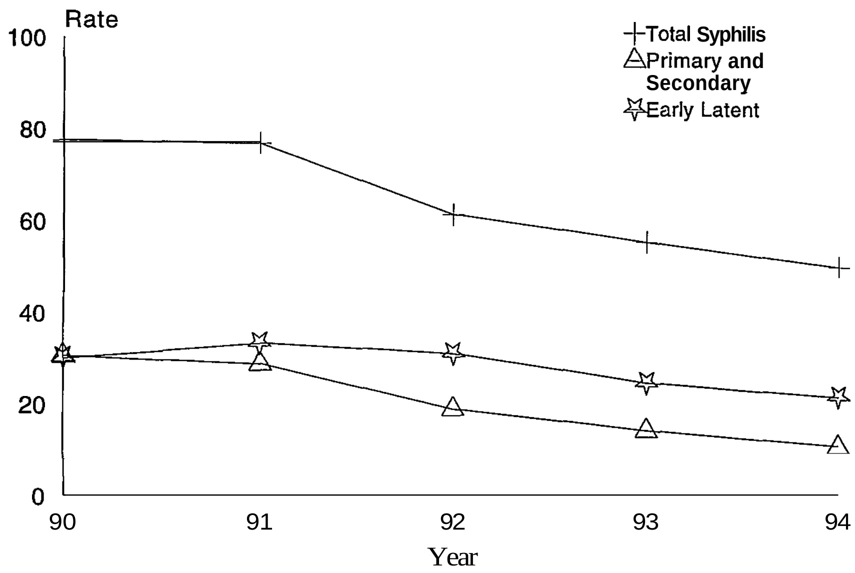
Early Latent Syphilis

The early latent stage of syphilis follows untreated secondary syphilis after a period of weeks or months. In this latent stage, positive clinical signs are absent and detection of syphilis relies upon serologic tests. Analysis of early latent syphilis cases, in addition to P&S syphilis, is important in identifying disease trends. While case rates for both P&S and early latent syphilis have declined in recent years, the rate for early latent syphilis has not decreased as rapidly as that for P&S syphilis (Figure 2). Almost equal numbers of P&S cases and early latent syphilis cases were reported in 1990. In 1994, however, more than twice as many early latent syphilis cases (3,869) were reported as were P&S syphilis cases (1,913).

Congenital Syphilis

One of the most serious forms of the disease, congenital syphilis, may cause abortion, stillbirth, or premature delivery, and it causes myriad complications in the newborn. Cases of congeni-

Figure 2. Syphilis Case Rate per 100,000 Population, 1990-1994

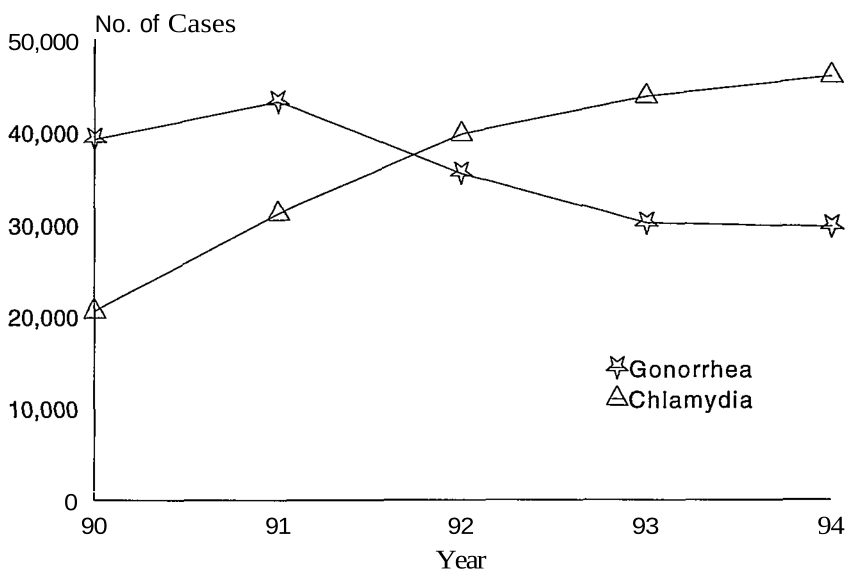


tal syphilis in 1994 numbered 224. This 9% decrease from the previous year is smaller than the 27% drop from 1992 to 1993, when the number of cases declined from 338 to 246. The two counties with the highest number of reported cases were Harris County (85) and Jefferson County (22). Statewide, 63% of the congenital syphilis cases were found among African Americans, 25% among Hispanics, 11% among whites, and 1% among all other ethnic groups. Hispanics account for a higher proportion of the congenital syphilis cases than they do of P&S syphilis (12%) or early latent syphilis (18%). A significant proportion of congenital syphilis cases among Hispanics were reported from the South Texas border county of Hidalgo (28%), followed by the West Texas border county of El Paso (18%).

Chlamydia

Infections caused by the bacteria *Chlamydia trachomatis* are among the most common of all sexually transmitted diseases. Chlamydia infection in women can result in serious complications such as pelvic inflammatory disease and ectopic pregnancy. Cases of chlamydia reported in Texas in 1994 numbered 46,064 - an increase of 5% from 1993 (Figure 3). The case rate for females was 423 per 100,000; the rate for males was 75. Women accounted for a high proportion (85%) of reported cases primarily because they are more likely than men to be tested by routine screening. In addition, infected men are often asymptomatic and therefore do not seek medical treatment. Women aged 15 to 19 years had an extremely high case rate (2,519) followed by women aged 20 to 24 years (1,885). Women under 25 years of age accounted for 80% of reported cases.

Figure 3. Gonorrhea and Chlamydia Cases, 1990-1994



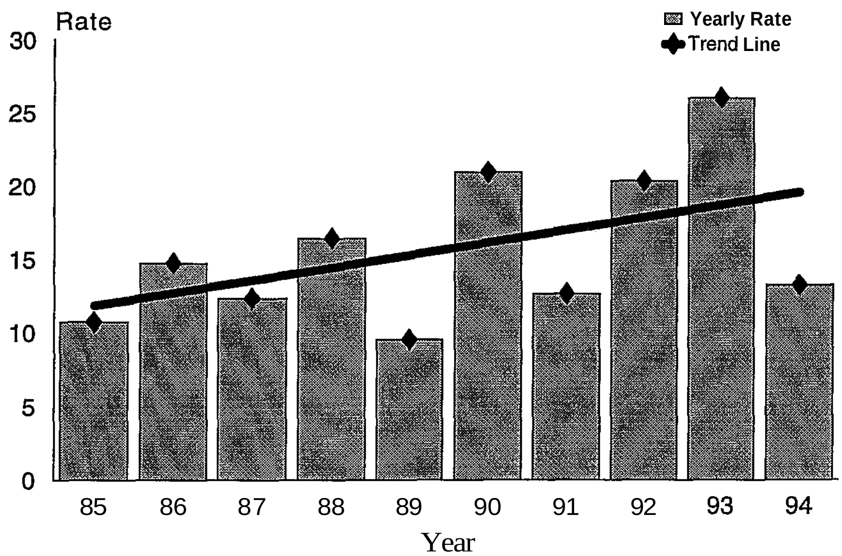
Gonorrhea

Gonorrhea is caused by the bacteria ***Neisseria gonorrhoeae.*** Gonococcal infections reported in 1994 numbered 29,757 compared with the slightly higher number of cases (30,122) reported in 1993 (Figure 3). The overall 1994 case rate was 163 per' 100,000. The rate of gonococcal infections was higher among males (178) than females (147). Men aged 20 to 24 years had the highest case rate among males (706). The two highest rates for women were for those aged 15 to 19 years (840) and for those aged 20 to 24 (585). Although gonorrhea has declined somewhat in recent years, this disease continues to be a significant cause of morbidity.

HIV ***and STD Epidemiology Division (512) 490-2500***

Shigellosis

Figure 1. Shigellosis Rates per 100,000 Population 1985-1994



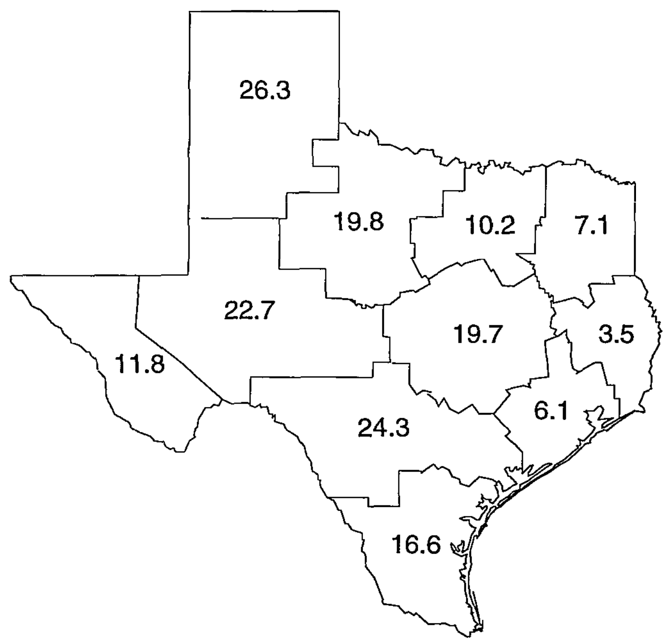
In 1994, cases of shigellosis reported in Texas numbered 2,410 -- a decrease of over 2,000 cases from 1993, a record year for shigellosis. In 1993 several large outbreaks (one with 348 cases) occurred and accounted for almost 11.0% of all cases reported that year. The statewide incidence rate for 1994 was 13.2 cases per 100,000 population. Figure 1 illustrates shigellosis morbidity rates since 1985. The distribution of shigellosis by region is illustrated in Figure 2. The number of cases in individual counties, and corresponding incidence rates, are provided in the Regional Statistical Summaries section at the back of this publication.

Children 1 to 5 years of age constituted 32.8% of all cases, and their incidence rate of 64.1 cases per 100,000 population was the highest rate for any age group. The incidence of shigellosis was higher among Hispanics (23.0 per 100,000) than among African Americans (8.8) or whites (6.8).

The *Shigella* species involved was identified and reported for 1,543 cases: *Shigella sonnei* (77.8%), *S. flexneri* (19.1%), *S. boydii* (0.1%), and *S. dysenteriae* (0.4%). Four outbreaks of shigellosis were reported to the Infectious Disease Epidemiology and Surveillance Division in 1994, accounting for 179 (7.4%) of the cases reported. Outbreaks, ranging in size from 31 to 74 cases, occurred in the following counties: Floyd, Guadalupe, Harris, and Howard. *S. sonnei* was identified as the causative agent in each outbreak.

Infectious Disease Epidemiology and Surveillance Division (512) 458-7676

Figure 2. Shigellosis Rates per 100,000 Population by Public Health Region



Tetanus

Reported tetanus morbidity in Texas increased in 1994 as 12 cases were reported, compared with only seven cases in 1993. The patients ranged in age from 12 to 89 years; median age was 62 years. Females comprised the majority (75%) of patients.

As is usual with most cases of tetanus, the majority (67%) of patients had never been vaccinated against the disease. The vaccination status for two other patients, one of whom died, could not be determined. The case-fatality rate was 25% in 1994; three persons, aged 63, 67, and 85 years, died of tetanus.

Hospital stays for the 12 patients ranged from 0 to 145 days; median stay was 53 days. A review of financial data provided by the 21 facilities involved in the treatment and care of these patients revealed cumulative medical costs in excess of $2 million: In contrast, the state contract cost for a single dose of tetanus-diphtheria toxoid is only 19¢.

The symptoms of tetanus are less serious in persons who have been fully vaccinated at any time during their life. The two youngest patients, 12 and 27 years of age, had each received a full primary series of tetanus toxoid and, as expected, had less severe courses of illness. One person was hospitalized for three days, and the other was treated in the emergency room. Both, however, were released to home health care for an extended number of weeks.

Although tetanus is most often associated with serious injuries such as lacerations and deep puncture wounds, tetanus also can result from injuries considered too trivial for medical attention. The majority of tetanus cases reported in Texas in recent years falls into the latter category. Of the eight patients who sustained injuries which led to their infections, none sought medical attention or treatment at the time of injury. These injuries included five puncture wounds, two abrasions, and one scratch. Three cases with no known acute injury presumably resulted from unhealed chronic wounds on lower extremities.

A surgical procedure was the probable source of infection for one tetanus case in 1994; A 63-year-old woman, who had no recent history of acute injury, had orthopedic surgery on her big toe. She experienced onset of tetanus symptoms within five days of the surgery and died five days later. She had never been vaccinated against tetanus. Due to the sterile environment mandated by surgical protocol, postoperative tetanus is rare. However, that risk can be reduced even further. A simple way to prevent post-operative tetanus is to require that all surgical patients have documented evidence of vaccination with tetanus toxoid within five years prior to the scheduled surgery.

Two other Texas patients who contracted tetanus from recent injuries had undergone surgical procedures one and three years, respectively, prior to their infections. Prophylactic vaccination prior to surgery may have prevented the tetanus infections these two individuals contracted much later.

Immunization Division (512) 458-7284

Tick- and Flea-borne Diseases

Several tick- and flea-borne diseases of humans are reportable to the Texas Department of Health (TDH): Lyme disease, Rocky Mountain spotted fever, tick-borne relapsing fever, murine typhus, and plague. Case reports of human ehrlichiosis, which is not reportable, are also collected. With the exception of plague, for which no cases were reported, a brief epidemiologic summary of these diseases for 1994 is provided below.

Of the 156 possible cases of Lyme disease reported to TDH in 1994, 56 (36%) met the current case definition:

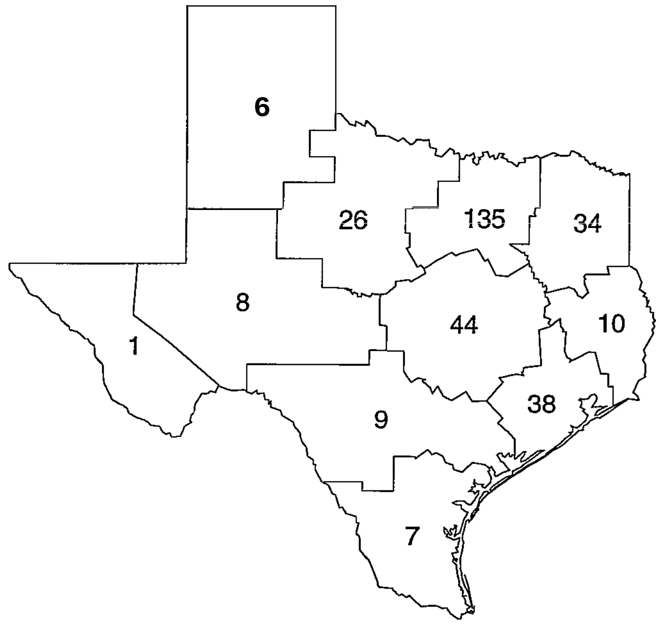
- Physician-diagnosed erythema migrans (EM) at least 5 cm. in diameter

OR

- Rheumatologic, cardiac, or neurologic manifestations with a positive laboratory test

Twenty (35%) of the 56 were male; 36 (64%) were female. Ages ranged from 7 to 79 years. Sixteen (29%) of the 56 patients had physician-diagnosed EM. Cardiac abnormalities, including heart block or ventricular dysfunction, were reported for two patients. Unilateral Bell's palsy was reported for 6 (11%) patients and other neurologic manifestations were reported for 31 (55%) persons. Twenty-six (46%) patients had migratory joint pain; 28 (50%) had arthritis1 swollen joints. Twenty (36%) of the 56 recalled tick exposure prior to onset of their illness; at least six patients were exposed outside the state. Figure 1 shows the residence, by public health region, of the Lyme disease cases that occurred between 1990 and 1994.

Figure 1. Lyme Disease Cases by Public Health Region, 1990-1994

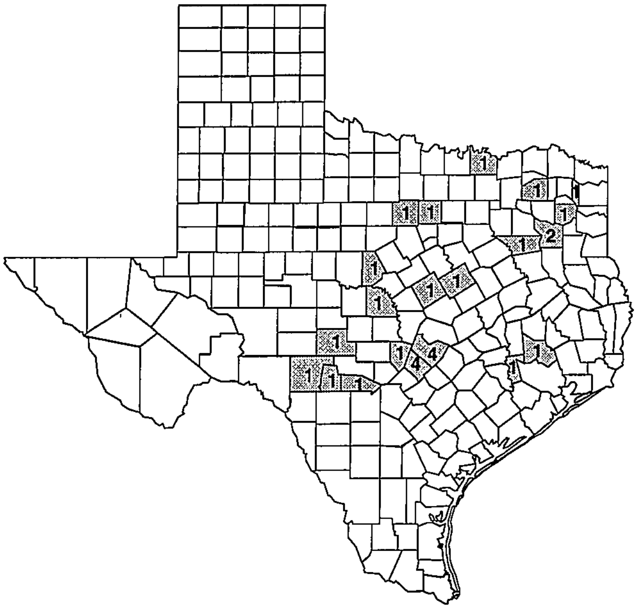


Seven cases of Rocky Mountain spotted fever (RMSF) were confirmed in 1994. All but one of the patients were male. Five patients were children whose ages ranged from 3 to 17 (average =7 years); the others were a 33-year-old postal worker and a 78-year-old rancher. Four patients were hospitalized. Onsets of illness occurred in April (3), June (1), July (1), and August (2). Symptoms included fever (100%), rash (86%), myalgia (86%), malaise (71%), nausea and/or vomiting (57%), and anorexia (57%). Four persons recalled tick bites prior to their illnesses.

Although human ehrlichiosis is not a notifiable disease in Texas, two cases were reported in 1994. Both patients, a 64-year-old man from San Saba County and a 47-year-old woman from Montgomery County, had onset of severe illness in early July, and each was hospitalized for nearly a month. They both had fever, headache, chills, and myalgias; one had a rash. While in the hospital, the male experienced pulmonary edema, renal failure, and seizures. The woman, who received her tick bite in Arkansas, had clinical hepatitis and bilateral pulmonary infiltrates. Figure 2 shows the counties of exposure or residence of the known Texas cases of human ehrlichiosis between 1986 and 1994.

There were three cases of tick-borne relapsing fever reported in 1994. One case, which occurred after exploration of a Bell County cave in February, was confirmed by the retrospective detection of spirochetes in a peripheral blood

Figure 2. County of Tick Exposure by County of Residence for 28 Human Ehrlichiosis Patients, 1986-1994



smear. The other two were due to tick exposure in a Travis County cave in June, and were confirmed serologically. Symptoms for the three patients, all adult males, included fever, headache, chills, sweats, and malaise. The first patient experienced four relapses; the others each had two.

Finally, nine cases of murine typhus were reported in 1994 in the following counties: Nueces (3); Hidalgo (2); Brooks, Nolan, San Patricio, and Starr (1 each). Six of the patients were male; three were female. Their ages ranged from 6 to 82 years. All but one patient were hospitalized. Onsets of illness occurred in February (1), June (1), July (2), October (2), November (2), and December (1). Symptoms included fever (100%), nausea and/or vomiting (78%), malaise (67%), and headache (56%). Only four (44%) persons had a rash.

Infectious Disease Epidemiology and Surveillance Division (512) 458-7676

Tuberculosis Outbreak in a Texas Prison

During the first six months of 1994, a Texas Department of Criminal Justice (TDCJ) facility in East Texas experienced the largest tuberculosis outbreak recorded for a Texas prison. Fifteen cases of pulmonary tuberculosis (TB) disease and 109 Mantoux purified protein derivative (PPD) skin test conversions were identified between April 5 and September 30, 1994. Most of the infections in this outbreak occurred between January 1 and June 30, 1994. All cases occurred among inmates and employees assigned to the Mentally Retarded Offenders Program (MROP) within the TDCJ system.

The outbreak was identified when the prison's public health nurse noticed a marked increase in the number of PPD skin test conversions. In 1993, 2,137 inmates were given PPD skin tests in prison A, and 36 (1.7%) experienced PPD skin test conversions. During the first five months of 1994, 1,101 inmates received PPD skin tests, and 34 (3%) experienced conversions. Additionally, four inmates were diagnosed with active pulmonary TB disease between April 5 and May 2, 1994. As a result, all the MROP inmates were screened for evidence of recent TB infection or progression to TB disease. A total of 449 inmates received PPD skin tests, and 237 inmates received chest x-rays between May 2 and June 16, 1994. The screening process identified 109 PPD converters and 10 additional inmates with both prior positive PPDs and abnormal chest x-rays. Of 686 inmates at risk of becoming infected with Mycobacterium tuberculosis during the outbreak period, 119 (17%) showed evidence of recent infection. Fourteen infected inmates and one infected prison employee developed active pulmonary TB disease. Eight (53%) of the 15 cases of pulmonary TB disease identified in this outbreak were culture positive for Mycobacterium tuberculosis; two were AFB smear positive as well. The remaining seven cases were diagnosed by a positive PPD or prior history of PPD conversion and an abnormal or unstable chest x-ray during the outbreak period.

Medical staff placed 104 inmates on preventive INH therapy, and the fifteen cases of pulmonary TB disease were all placed on standard four drug therapy (INH, RIF, EMB, and PZA). All culture isolates were sensitive to all first-line antituberculosis medications tested. The case rate of 2,040 per hundred thousand in this outbreak greatly exceeds the case rate of approximately 14 per hundred thousand for the general population of the State of Texas.

The Infectious Disease Epidemiology & Surveillance Division enrolled 230 inmates in a case-control study to determine risk factors for TB infection and identify risk factors for progression to active TB disease. A case-patient was defined as an MROP inmate who experienced a PPD skin test conversion; developed culture-confirmed pulmonary TB disease; or had a prior history of TB infection with an abnormal or unstable chest x-ray between January 1 and June 30, 1994. One hundred fourteen controls were randomly chosen from among the 567 inmates who screened negative for recent TB infection during the mass screening of inmates conducted in May and June 1994. This number approximately matched the number of inmates showing evidence of recent TB infection at the time the study began.

Information was collected from computerized TDCJ administrative records, special education program records for MROP inmates in prison A, and medical charts of all inmates enrolled in the study. Of the 230 inmates initially enrolled in the study, 66 were either lost to follow-up or dropped from the analysis because a prior history of TB infection was discovered upon review of their medical charts. There were 164 inmates included in the final data analysis. The mean age in the study population was 32 years (range: 21 to 60). The study population was 79% African American, 14% Hispanic, and 7% white, with no significant differences between cases and controls with regard to race or ethnicity.

All areas associated with TB transmission in the prison were areas associated with the presumed index case in this outbreak. The index patient had a history of prior TB infection in 1988, and had been given a six-month course of INH prophylaxis in 1988 as a result of his positive PPD skin test. He was diagnosed with AFB smear- and culture-positive TB in late April, 1994. This inmate lived on the D Wing, attended school in Classroom A, and worked on the prison utility work crew. The analysis of data collected in this study showed that inmates whose job description included utility work were more likely to be infected with TB (OR 2.52, $p < .01$); inmates attending Classroom A were more likely to be infected with TB (OR 8.34, $p = .02$); and inmates living on the D Wing in the prison were more likely to be infected with TB (OR 25.84, $p < .01$).

The most significant risk factor associated with TB infection and pulmonary TB disease in this outbreak was living or working on the D Wing in prison A. A special population of inmates who have a history of mental illness and other psychological problems in addition to their mental retardation lived on the D Wing. The fact that the outbreak originated among inmates with a dual diagnosis of mental retardation and mental illness may explain why cases were not recognized more quickly and why so many inmates became infected in such a short period of time.

This outbreak is notable because it represents a major outbreak of TB transmission in a facility where standard TB control practices are routinely followed. The area where the majority of TB transmission occurred in this outbreak was the D Wing in prison A. Ten cases of pulmonary TB disease, including the most likely source of the outbreak, and 49 PPD conversions showed an association with the D Wing. Structurally the same as any other area within the prison, this wing differs only in the type of inmate assigned. Annual chest x-rays and comprehensive physical examinations for institutionalized persons with a history of both mental illness and prior TB infection may be recommended. Aggressive evaluation of persons with a profile of mental illness and a history of TB infection could enable medical staff to recognize the progression to TB disease more rapidly and prevent future TB outbreaks among these special populations.

Tuberculosis Elimination Division (512) 458-7447

Tuberculosis Summary

From 1970 through 1980 there was, on average, a 3% decrease each year in reported tuberculosis (TB) cases. Had this decline continued, the number of tuberculosis cases in Texas reported for 1994 would probably have been fewer than 1,450. However, a yearly increase in reported cases began in the mid-1980s and continued through 1994. The number of cases reported in 1994 - 2,542 (13.9 per 100,000 population) - is greater than that for any year since 1975, when 2,600 cases were reported.

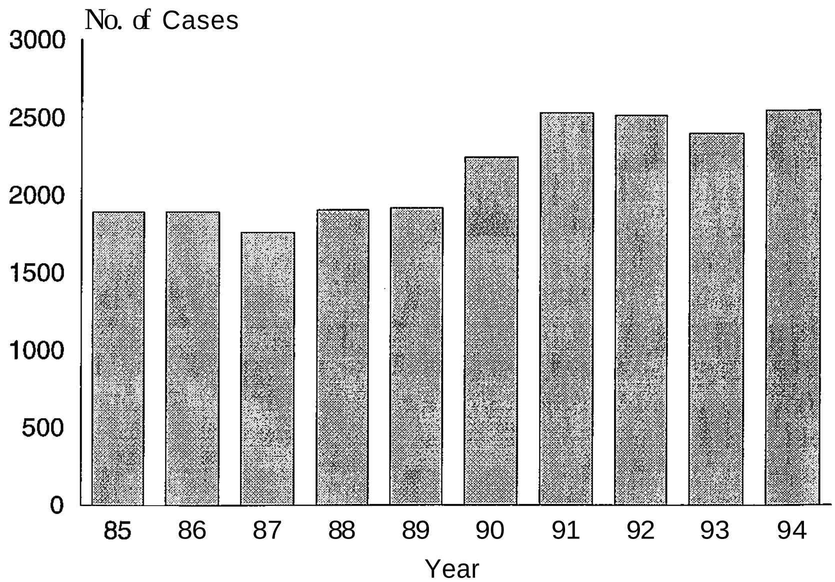
Cases of clinical or confirmed tuberculosis must be reported in Texas. In addition, reporting of tuberculosis infection in children under the age of 15 years, even in the absence of disease, is also required.

The number of young Texans currently presenting with tuberculosis disease is evidence that transmission continues to be a major problem in this state. The 233 tuberculosis cases in persons younger than 15 years of age that were reported in 1994 represented a 43% increase over the 163 cases reported for this group in 1993. The significance of this increase is clouded by many unmeasurable factors such as changes in diagnosis and reporting. However, the obvious message of such an increase among children is that transmission was recent, given their short lifetimes. Moreover, many more children are likely to have been infected and are at risk of developing tuberculosis disease in the future.

Not all of the Texas cases are the result of tuberculosis transmission within this state or even within the United States. Of the 1994 Texas cases, 26% (679) of the patients were born outside the US. At least 24% were from regions of the world with high levels of tuberculosis infection within their populations. Individuals born in Mexico comprised a larger proportion of this group than did persons from any other single country.

Another significant contributor to the continued increase in tuberculosis incidence is co-infection with the Human Immunodeficiency Virus (HIV), which dramatically increases a person's likelihood of developing tuberculosis disease. Of the 2,542 tuberculosis cases reported in 1994 in Texas, 341 cases of co-infection with HIV were confirmed.

Figure 1. Tuberculosis Cases, 1985-1994



Although the epidemiology of tuberculosis may not be completely understood, it is clear that the prevention of the transmission of the tuberculosis organism to new hosts is an essential element of an effective elimination strategy. Conventional tuberculosis control strategy focuses primarily on two efforts:

- Identify cases and maintain patients on appropriate therapy to prevent recurrence and transmission of disease.

- Identify recently infected persons or infected persons who are at high risk of developing disease and maintain them on appropriate therapy to prevent progression to disease.

This strategy has failed to stop tuberculosis disease transmission because of the following inherent problems: the delay in diagnosis, the subsequent delay in initiating treatment, the time necessary for completion of effective therapy, and the difficulty in ensuring compliance with the treatment regimen. All these factors contribute to the continued infectivity of the patient and, thereby, the increased risk of transmission to healthy persons.

Individuals who are infected with tuberculosis are at risk of active disease for the remainder of their lives. Although the risk of disease is highest soon after infection, the greatest number of new cases in a population comes from individuals infected many years prior to onset of illness. Therefore, even with a new strategy capable of total prevention of tuberculosis transmission, elimination of disease will still be difficult and will take a long time. A large population in Texas and worldwide is already infected with tuberculosis. These persons will continue to be at risk of developing tuberculosis disease as well as possibly transmitting this infection.

Medical treatment will continue to be necessary for those with tuberculosis disease, but treatment has become complicated by multidrug-resistant tuberculosis (MDR-TB). MDR-TB, caused by organisms resistant to at least isoniazid and rifampin, is difficult and costly to treat. Unknown numbers of persons are being infected now with MDR-TB. When these persons develop disease, they can remain infectious for many years. In 1994, 21 newly recognized MDR-TB cases were reported in Texas.

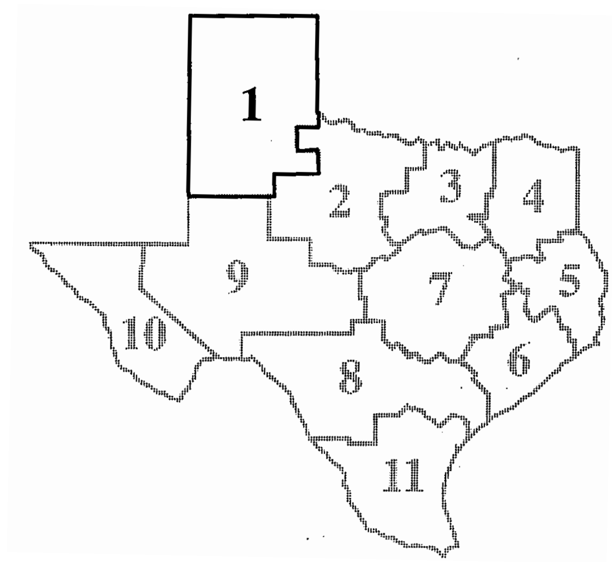
Table 1. Tuberculosis in Children < 15 and Total Reported Cases, 1985-1994

	85	86	87	88	89	90	91	92	93	94
Cases in Children < 15	143	117	120	127	109	187	212	218	163	233
Total Cases	1891	1890	1757	1901	1915	2242	2525	2510	2393	2542

To make the medical treatment of tuberculosis more effective, a new approach called directly observed therapy (DOT) was implemented in 1992. In a properly administered DOT program, each dose of medication is taken by the patient while being observed by a responsible person. DOT can be accomplished whether the patient receives the medication at a clinic, in a hospital, at home, in jail, or even "on the street." On December 31, 1994, 67% (1490/2213) of the open tuberculosis cases or suspects in Texas were on DOT (compared with 19% in 1992 and 35% in 1993). This treatment regimen is expected to shorten the length of therapy, decrease the occurrence of secondary MDR-TB, and decrease the number of days tuberculosis patients remain infectious. DOT should give Texans improved protection from tuberculosis until a new strategy that will stop all transmission is implemented.

Tuberculosis Elimination Division (512) 458-7447

REGIONAL STATISTICAL SUMMARIES



PUBLIC HEALTH REGION 1

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 1 - 1994

COUNTY	1994 POP.	HEPATITIS A CASES	HEPATITIS A RATE	HEPATITIS B CASES	HEPATITIS B RATE	HEPATITIS C CASES	HEPATITIS C RATE	HEPATITIS UNSPECIFIED CASES	HEPATITIS UNSPECIFIED RATE
ARMSTRONG	2,004	0	0.0	0	0.0	0	0.0	0	0.0
BAILEY	7.199	2	27.8	0	0.0	0	0.0	0	0.0
BRISCOE	1,947	0	0.0	0	0.0	0	0.0	0	0.0
CARSON	6,520	1	15.3	0	0.0	0	0.0	0	0.0
CASTRO	9,265	3	32.4	0	0.0	0	0.0	0	0.0
CHILDRESS	6,730	1	14.9	3	44.6	0	0.0	0	0.0
COCHRAN	4,576	1	21.9	0	0.0	0	0.0	0	0.0
COLLINGSWORTH	3,496	0	0.0	1	28.6	0	0.0	0	0.0
CROSBY	7,407	1	13.5	0	0.0	0	0.0	0	0.0
DALLAM	5,468	1	18.3	0	0.0	1	18.3	0	0.0
DEAF SMITH	19,580	1	5.1	4	20.4	0	0.0	0	0.0
DICKENS	2.515	0	0.0	0	0.0	0	0.0	0	0.0
DONLEY	3,590	0	0.0	0	0.0	0	0.0	0	0.0
FLOYD	8,580	1	11.7	0	0.0	0	0.0	0	0.0
GARZA	5.193	0	0.0	0	0.0	0	0.0	0	0.0
GRAY	23,920	21	87.8	5	20.9	4	16.7	0	0.0
HALE	34,505	1	2.9	3	8.7	1	2.9	0	0.0
HALL	3,782	0	0.0	2	52.9	0	0.0	0	0.0
HANSFORD	5,849	0	0.0	0	0.0	0	0.0	0	0.0
HARTLEY	4,583	0	0.0	0	0.0	0	0.0	0	0.0
HEMPHILL	3,689	0	0.0	0	0.0	0	0.0	0	0.0
HOCKLEY	24,389	0	0.0	0	0.0	0	0.0	0	0.0
HUTCHINSON	25,268	1	4.0	0	0.0	0	0.0	0	0.0
KING	367	0	0.0	0	0.0	0	0.0	0	0.0
LAMB	14,863	1	6.7	1	6.7	0	0.0	0	0.0
LIPSCOMB	3,115	0	0.0	0	0.0	0	0.0	0	0.0
LUBBOCK	225,097	11	4.9	8	3.6	2	0.9	0	0.0
LYNN	6,805	0	0.0	0	0.0	0	0.0	0	0.0
MOORE	18,334	19	103.6	1	5.5	2	10.9	1	5.5
MOTLEY	1,492	0	0.0	0	0.0	0	0.0	0	0.0
OCHILTREE	9.117	2	21.9	0	0.0	0	0.0	0	0.0
OLDHAM	2,259	1	44.3	0	0.0	0	0.0	0	0.0
PARMER	10,106	2	19.8	0	0.0	0	0.0	0	0.0
POTTER	101,763	13	12.8	33	32.4	6	5.9	0	0.0
RANDALL	97,685	2	2.0	5	5.1	0	0.0	0	0.0
ROBERTS	1,028	2	194.6	0	0.0	0	0.0	0	0.0
SHERMAN	2,901	0	0.0	1	34.5	1	34.5	0	0.0
SWISHER	8,663	1	11.5	1	11.5	0	0.0	0	0.0
TERRY	13,466	0	0.0	4	29.7	0	0.0	0	0.0
WHEELER	5,649	0	0.0	0	0.0	0	0.0	0	0.0
YOAKUM	9,057	4	44.2	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	751,822	93	12.4	72	9.6	17	2.3	1	0.1
STATEWIDE TOTALS	18,286,827	2,877	15.7	1,422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 1 - 1994

COUNTY	1994 POP.	AMEBIASIS CASES	AMEBIASIS RATE	CAMPYLOBACTER CASES	CAMPYLOBACTER RATE	SALMONELLOSIS CASES	SALMONELLOSIS RATE	SHIGELLOSIS CASES	SHIGELLOSIS RATE
ARMSTRONG	2,004	0	0.0	1	49.9	0	0.0	0	0.0
BAILEY	7.199	0	0.0	0	0.0	0	0.0	0	0.0
BRISCOE	1,947	0	0.0	0	0.0	0	0.0	0	0.0
CARSON	6,520	0	0.0	0	0.0	0	0.0	0	0.0
CASTRO	9,265	0	0.0	0	0.0	3	32.4	2	21.6
CHILDRESS	6,730	0	0.0	0	0.0	1	14.9	1	14.9
COCHRAN	4,576	0	0.0	0	0.0	2	43.7	0	0.0
COLLINGSWORTH	3,496	0	0.0	1	28.6	1	28.6	5	143.0
CROSBY	7,407	0	0.0	0	0.0	1	13.5	4	54.0
DALLAM	5,468	0	0.0	0	0.0	0	0.0	0	0.0
DEAF SMITH	19,580	0	0.0	4	20.4	10	51.1	5	25.5
DICKENS	2,515	0	0.0	1	39.8	0	0.0	0	0.0
DONLEY	3,590	0	0.0	1	27.9	0	0.0	0	0.0
FLOYD	8,580	0	0.0	2	23.3	0	0.0	79	920.7
GARZA	5,193	0	0.0	1	19.3	0	0.0	0	0.0
GRAY	23,920	0	0.0	2	8.4	1	4.2	0	0.0
HALE	34,505	0	0.0	1	2.9	7	20.3	6	17.4
HALL	3,782	0	0.0	0	0.0	0	0.0	0	0.0
HANSFORD	5,849	0	0.0	1	17.1	0	0.0	0	0.0
HARTLEY	4,583	0	0.0	1	21.8	0	0.0	0	0.0
HEMPHILL	3,689	0	0.0	0	0.0	1	27.1	0	0.0
HOCKLEY	24,389	0	0.0	1	4.1	2	8.2	1	4.1
HUTCHINSON	25,268	0	0.0	1	4.0	7	27.7	2	7.9
KING	367	0	0.0	0	0.0	0	0.0	0	0.0
LAMB	14,863	0	0.0	0	0.0	1	6.7	1	6.7
LIPSCOMB	3,115	0	0.0	1	32.1	0	0.0	0	0.0
LUBBOCK	225,097	1	0.4	39	17.3	74	32.9	53	23.5
LYNN	6,805	0	0.0	0	0.0	0	0.0	0	0.0
MOORE	18,334	0	0.0	0	0.0	4	21.8	5	27.3
MOTLEY	1,492	0	0.0	0	0.0	0	0.0	0	0.0
OCHILTREE	9,117	0	0.0	0	0.0	0	0.0	0	0.0
OLDHAM	2,259	0	0.0	0	0.0	0	0.0	0	0.0
PARMER	10,106	0	0.0	1	9.9	2	19.8	0	0.0
POTTER	101.763	1	1.0	33	32.4	34	33.4	31	30.5
RANDALL	97,685	0	0.0	1	1.0	5	5.1	0	0.0
ROBERTS	1,028	0	0.0	0	0.0	0	0.0	0	0.0
SHERMAN	2,901	0	0.0	0	0.0	0	0.0	0	0.0
SWISHER	8,663	0	0.0	0	0.0	1	11.5	0	0.0
TERRY	13,466	0	0.0	0	0.0	1	7.4	2	14.9
WHEELER	5,649	0	0.0	1	17.7	3	53.1	0	0.0
YOAKUM	9,057	0	0.0	0	0.0	1	11.0	1	11.0
REGIONAL TOTALS	751,822	2	0.3	94	12.5	162	21.5	198	26.3
STATEWIDE TOTALS	18,286,827	110	0.6	997	5.5	1,983	10.8	2,410	13.2

REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 1 - 1994

COUNTY	1994 POP.	ASEPTIC MENINGITIS CASES	ASEPTIC MENINGITIS RATE	CHICKENPOX CASES	CHICKENPOX RATE	ENCEPHALITIS CASES	ENCEPHALITIS RATE	TUBERCULOSIS CASES	TUBERCULOSIS RATE
ARMSTRONG	2,004	0	0.0	0	0.0	0	0.0	0	0.0
BAILEY	7,199	0	0.0	0	0.0	0	0.0	2	27.8
BRISCOE	1,947	0	0.0	0	0.0	0	0.0	0	0.0
CARSON	6,520	0	0.0	0	0.0	0	0.0	0	0.0
CASTRO	9,265	1	10.8	0	0.0	0	0.0	1	10.8
CHILDRESS	6,730	0	0.0	0	0.0	0	0.0	2	29.7
COCHRAN	4,576	0	0.0	0	0.0	0	0.0	0	0.0
COLLINGSWORTH	3,496	0	0.0	0	0.0	0	0.0	0	0.0
CROSBY	7,407	0	0.0	3	40.5	0	0.0	0	0.0
DALLAM	5,468	0	0.0	11	201.2	0	0.0	0	0.0
DEAF SMITH	19,580	0	0.0	25	127.7	0	0.0	1	5.1
DICKENS	2,515	0	0.0	0	0.0	0	0.0	0	0.0
DONLEY	3,590	0	0.0	0	0.0	0	0.0	0	0.0
FLOYD	8,580	0	0.0	10	116.6	0	0.0	0	0.0
GARZA	5193	0	0.0	0	0.0	0	0.0	3	57.8
GRAY	23,920	1	4.2	19	79.4	0	0.0	0	0.0
HALE	34,505	0	0.0	52	150.7	0	0.0	2	5.8
HALL	3,782	0	0.0	0	0.0	0	0.0	1	26.4
HANSFORD	5,849	0	0.0	0	0.0	0	0.0	0	0.0
HARTLEY	4,583	0	0.0	0	0.0	0	0.0	0	0.0
HEMPHILL	3,689	0	0.0	0	0.0	0	0.0	0	0.0
HOCKLEY	24,389	0	0.0	5	20.5	0	0.0	0	0.0
HUTCHINSON	25,268	1	4.0	0	0.0	0	0.0	2	7.9
KING	367	0	0.0	0	0.0	0	0.0	0	0.0
LAMB	14,863	0	0.0	0	0.0	0	0.0	0	0.0
LIPSCOMB	3,115	0	0.0	0	0.0	0	0.0	0	0.0
LUBBOCK	225,097	9	4.0	59	26.2	0	0.0	9	4.0
LYNN	6,805	0	0.0	0	0.0	0	0.0	5	73.5
MOORE	18,334	0	0.0	0	0.0	0	0.0	0	0.0
MOTLEY	1,492	0	0.0	0	0.0	0	0.0	0	0.0
OCHILTREE	9,117	1	11.0	7	76.8	0	0.0	0	0.0
OLDHAM	2,259	0	0.0	0	0.0	0	0.0	0	0.0
PARMER	10.106	0	0.0	0	0.0	0	0.0	0	0.0
POTTER	101,763	24	23.6	78	76.6	1	1.0	11	10.8
RANDALL	97,685	4	4.1	38	38.9	2	2.0	5	5.1
ROBERTS	1,028	0	0.0	0	0.0	0	0.0	0	0.0
SHERMAN	2,901	0	0.0	0	0.0	0	0.0	0	0.0
SWISHER	8,663	0	0.0	0	0.0	0	0.0	0	0.0
TERRY	13,466	0	0.0	0	0.0	0	0.0	0	0.0
WHEELER	5,649	1	17.7	0	0.0	0	0.0	0	0.0
YOAKUM	9,057	0	0.0	10	110.4	0	0.0	0	0.0
REGIONAL TOTALS	751,822	42	5.6	317	42.2	3	0.4	44	5.9
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

REPORTED CASES OF SELECTED VACCINE PREVENTABLE DISEASES AND RATES PER 100,000 POPULATION

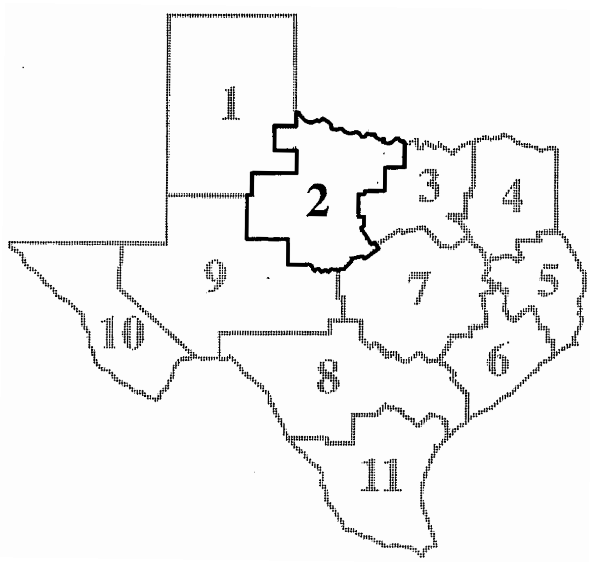
PUBLIC HEALTH REGION 1 - 1994

COUNTY	1994 POP.	MEASLES CASES	MEASLES RATE	MUMPS CASES	MUMPS RATE	PERTUSSIS CASES	PERTUSSIS RATE	RUBELLA CASES	RUBELLA RATE
ARMSTRONG	2,004	0	0.0	0	0.0	0	0.0	0	0.0
BAILEY	7,199	0	0.0	0	0.0	0	0.0	0	0.0
BRISCOE	1,947	0	0.0	0	0.0	0	0.0	0	0.0
CARSON	6,520	0	0.0	0	0.0	0	0.0	0	0.0
CASTRO	9,265	0	0.0	0	0.0	0	0.0	0	0.0
CHILDRESS	6,730	0	0.0	0	0.0	0	0.0	0	0.0
COCHRAN	4,576	0	0.0	0	0.0	0	0.0	0	0.0
COLLINGSWORTH	3,496	0	0.0	0	0.0	0	0.0	0	0.0
CROSBY	7,407	0	0.0	0	0.0	0	0.0	0	0.0
DALLAM	5,468	0	0.0	0	0.0	0	0.0	0	0.0
DEAF SMITH	19,580	0	0.0	20	102.1	0	0.0	0	0.0
DICKENS	2,515	0	0.0	0	0.0	0	0.0	0	0.0
DONLEY	3,590	0	0.0	0	0.0	0	0.0	0	0.0
FLOYD	8,580	0	0.0	0	0.0	0	0.0	0	0.0
GARZA	5,193	0	0.0	0	0.0	0	0.0	0	0.0
GRAY	23,920	0	0.0	0	0.0	0	0.0	0	0.0
HALE	34,505	0	0.0	0	0.0	0	0.0	0	0.0
HALL	3,782	0	0.0	2	52.9	0	0.0	0	0.0
HANSFORD	5,849	0	0.0	0	0.0	0	0.0	0	0.0
HARTLEY	4,583	0	0.0	0	0.0	0	0.0	0	0.0
HEMPHILL	3,689	0	0.0	0	0.0	0	0.0	0	0.0
HOCKLEY	24,389	0	0.0	2	8.2	0	0.0	0	0.0
HUTCHINSON	25,268	0	0.0	0	0.0	0	0.0	0	0.0
KING	367	0	0.0	0	0.0	0	0.0	0	0.0
LAMB	14,863	0	0.0	0	0.0	0	0.0	0	0.0
LIPSCOMB	31 15	0	0.0	0	0.0	0	0.0	0	0.0
LUBBOCK	225,097	1	0.4	6	2.7	1	0.4	0	0.0
LYNN	6,805	0	0.0	0	0.0	0	0.0	0	0.0
MOORE	18,334	0	0.0	0	0.0	0	0.0	0	0.0
MOTLEY	1,492	0	0.0	0	0.0	0	0.0	0	0.0
OCHILTREE	9,117	0	0.0	1	11.0	0	0.0	0	0.0
OLDHAM	2,259	0	0.0	1	44.3	0	0.0	0	0.0
PARMER	10,106	0	0.0	0	0.0	0	0.0	0	0.0
POTTER	101,763	0	0.0	4	3.9	7	6.9	0	0.0
RANDALL	97,685	0	0.0	3	3.1	4	4.1	0	0.0
ROBERTS	1,028	0	0.0	0	0.0	0	0.0	0	0.0
SHERMAN	2,901	0	0.0	0	0.0	0	0.0	0	0.0
SWISHER	8,663	0	0.0	0	0.0	0	0.0	0	0.0
TERRY	13,466	0	0.0	0	0.0	0	0.0	0	0.0
WHEELER	5,649	0	0.0	0	0.0	0	0.0	0	0.0
YOAKUM	9,057	0	0.0	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	751,822	1	0.1	39	5.2	12	1.6	0	0.0
STATEWIDE TOTALS	18,286,827	17	0.1	234	1.3	160	0.9	9	0.0

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 1 - 1994

		CHLAMYDIA		GONORRHEA		P & S SYPHILIS	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE
ARMSTRONG	2,004	0	0.0	0	0.0	0	0.0
BAILEY	7,199	18	250.0	0	0.0	0	0.0
BRISCOE	1,947	0	0.0	0	0.0	0	0.0
CARSON	6,520	3	46.0	0	0.0	0	0.0
CASTRO	9,265	13	140.3	2	21.6	0	0.0
CHILDRESS	6,730	42	624.1	8	118.9	0	0.0
COCHRAN	4,576	11	240.4	5	109.3	0	0.0
COLLINGSWORTH	3,496	8	228.8	2	57.2	0	0.0
CROSBY	7,407	22	297.0	8	108.0	0	0.0
DALLAM	5,468	6	109.7	4	73.2	0	0.0
DEAF SMITH	19,580	84	429.0	12	61.3	1	5.1
DICKENS	2,515	7	278.3	4	159.0	0	0.0
DONLEY	3,590	13	362.1	7	195.0	0	0.0
FLOYD	8,580	11	128.2	9	104.9	1	11.7
GARZA	5,193	16	308.1	6	115.5	0	0.0
GRAY	23,920	61	255.0	32	133.8	0	0.0
HALE	34,505	123	356.5	64	185.5	1	2.9
HALL	3,782	2	52.9	1	26.4	0	0.0
HANSFORD	5,849	2	34.2	1	17.1	0	0.0
HARTLEY	4,583	1	21.8	1	21.8	0	0.0
HEMPHILL	3,689	1	27.1	0	0.0	0	0.0
HOCKLEY	24,389	48	196.8	11	45.1	0	0.0
HUTCHINSON	25,268	45	178.1	7	27.7	0	0.0
KING	367	1	272.5	0	0.0	0	0.0
LAMB	14,863	30	201.8	7	47.1	1	6.7
LIPSCOMB	3,115	2	64.2	0	0.0	0	0.0
LUBBOCK	225,097	1,068	474.5	584	259.4	6	2.7
LYNN	6,805	10	147.0	2	29.4	0	0.0
MOORE	18,334	29	158.2	3	16.4	0	0.0
MOTLEY	1,492	3	201.1	0	0.0	0	0.0
OCHILTREE	9,117	18	197.4	6	65.8	0	0.0
OLDHAM	2,259	0	0.0	0	0.0	0	0.0
PARMER	10,106	12	118.7	1	9.9	0	0.0
POTTER	101,763	654	642.7	334	328.2	1	1.0
RANDALL	97,685	218	223.2	40	40.9	0	0.0
ROBERTS	1,028	0	0.0	0	0.0	0	0.0
SHERMAN	2,901	1	34.5	0	0.0	0	0.0
SWISHER	8,663	16	184.7	10	115.4	0	0.0
TERRY	13,466	32	237.6	22	163.4	6	44.6
WHEELER	5,649	5	88.5	0	0.0	0	0.0
YOAKUM	9,057	19	209.8	2	22.1	0	0.0
REGIONAL TOTALS	751,822	2,655	353.1	1,195	158.9	17	2.3
STATEWIDE TOTALS	18,286,827	46,046	251.8	29,757	162.7	1,913	10.5



PUBLIC HEALTH REGION 2

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 2 - 1994

COUNTY	1994 POP.	HEPATITIS A CASES	HEPATITIS A RATE	HEPATITIS B CASES	HEPATITIS B RATE	HEPATITIS C CASES	HEPATITIS C RATE	HEPATITIS UNSPECIFIED CASES	HEPATITIS UNSPECIFIED RATE
ARCHER	8,133	2	24.6	0	0.0	2	24.6	0	0.0
BAYLOR	4,262	1	23.5	0	0.0	0	0.0	0	0.0
BROWN	34,394	0	0.0	10	29.1	2	5.8	0	0.0
CALLAHAN	11,915	0	0.0	0	0.0	1	8.4	0	0.0
CLAY	10,029	2	19.9	0	0.0	0	0.0	0	0.0
COLEMAN	9,453	1	10.6	0	0.0	0	0.0	0	0.0
COMANCHE	13,268	1	7.5	0	0.0	0	0.0	0	0.0
COTTLE	2,209	0	0.0	0	0.0	0	0.0	0	0.0
EASTLAND	18,001	1	5.6	3	16.7	2	11.1	0	0.0
FISHER	4,747	0	0.0	0	0.0	0	0.0	0	0.0
FOARD	1,762	0	0.0	0	0.0	0	0.0	0	0.0
HARDEMAN	5,149	0	0.0	0	0.0	0	0.0	0	0.0
HASKELL	6,689	3	44.9	0	0.0	0	0.0	0	0.0
JACK	6,913	0	0.0	0	0.0	0	0.0	0	0.0
JONES	18,260	0	0.0	0	0.0	0	0.0	0	0.0
KENT	1,016	0	0.0	0	0.0	0	0.0	0	0.0
KNOX	4,777	2	41.9	0	0.0	0	0.0	0	0.0
MITCHELL	8,924	0	0.0	0	0.0	0	0.0	1	11.2
MONTAGUE	16,719	3	17.9	0	0.0	0	0.0	0	0.0
NOLAN	16,728	4	23.9	1	6.0	0	0.0	1	6.0
RUNNELS	11,297	1	8.9	0	0.0	0	0.0	0	0.0
SCURRY	18,746	3	16.0	1	5.3	1	5.3	1	5.3
SHACKELFORD	3,256	0	0.0	0	0.0	0	0.0	0	0.0
STEPHENS	9,294	1	10.8	1	10.8	0	0.0	0	0.0
STONEWALL	1,987	0	0.0	0	0.0	0	0.0	0	0.0
TAYLOR	123,491	16	13.0	10	8.1	4	3.2	0	0.0
THROCKMORTON	1,857	0	0.0	0	0.0	0	0.0	0	0.0
WICHITA	124,294	22	17.7	16	12.9	12	9.7	0	0.0
WILBARGER	15,174	2	13.2	3	19.8	0	0.0	0	0.0
YOUNG	17,701	2	11.3	1	5.6	0	0.0	0	0.0
REGIONAL TOTALS	530,445	67	12.6	46	8.7	24	4.5	3	0.6
STATEWIDE TOTALS	18,286,827	2,877	15.7	1,422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 2 - 1994

		AMEBIASIS		CAMPYLOBACTER		SALMONELLOSIS		SHIGELLOSIS	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
ARCHER	8,133	0	0.0	2	24.6	1	12.3	0	0.0
BAYLOR	4,262	0	0.0	0	0.0	1	23.5	2	46.9
BROWN	34,394	0	0.0	1	2.9	6	17.4	4	11.6
CALLAHAN	11,915	0	0.0	1	8.4	6	50.4	6	50.4
CLAY	10,029	0	0.0	1	10.0	1	10.0	0	0.0
COLEMAN	9,453	0	0.0	0	0.0	2	21.2	0	0.0
COMANCHE	13,268	0	0.0	0	0.0	2	15.1	0	0.0
COTTLE	2,209	0	0.0	0	0.0	0	0.0	0	0.0
EASTLAND	18,001	0	0.0	1	5.6	1	5.6	1	5.6
FISHER	4,747	0	0.0	0	0.0	2	42.1	0	0.0
FOARD	1,762	0	0.0	0	0.0	0	0.0	0	0.0
HARDEMAN	5,149	0	0.0	0	0.0	0	0.0	0	0.0
HASKELL	6,689	0	0.0	0	0.0	1	15.0	2	29.9
JACK	6,913	0	0.0	0	0.0	2	28.9	1	14.5
JONES	18,260	0	0.0	0	0.0	0	0.0	2	11.0
KENT	1,016	0	0.0	0	0.0	0	0.0	0	0.0
KNOX	4,777	0	0.0	1	20.9	0	0.0	0	0.0
MITCHELL	8,924	0	0.0	0	0.0	0	0.0	0	0.0
MONTAGUE	16,719	0	0.0	0	0.0	2	12.0	0	0.0
NOLAN	16,728	0	0.0	0	0.0	4	23.9	1	6.0
RUNNELS	11,297	0	0.0	1	8.9	2	17.7	1	8.9
SCURRY	18,746	0	0.0	0	0.0	2	10.7	2	10.7
SHACKELFORD	3,256	0	0.0	0	0.0	0	0.0	0	0.0
STEPHENS	9,294	0	0.0	0	0.0	1	10.8	1	10.8
STONEWALL	1,987	0	0.0	0	0.0	0	0.0	0	0.0
TAYLOR	123,491	9	7.3	5	4.0	26	21.1	69	55.9
THROCKMORTON	1,857	0	0.0	0	0.0	1	53.9	0	0.0
WICHITA	124,294	0	0.0	6	4.8	12	9.7	11	8.9
WILBARGER	15,174	0	0.0	0	0.0	2	13.2	2	13.2
YOUNG	17,701	0	0.0	1	5.6	3	16.9	0	0.0
REGIONAL TOTALS	530,445	9	1.7	20	3.8	80	15.1	105	19.8
STATEWIDE TOTALS	18,286,827	110	0.6	997	5.5	1,983	10.8	2,410	13.2

REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 2 - 1994

		ASEPTIC MENINGITIS		CHICKENPOX		ENCEPHALITIS		TUBERCULOSIS	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
ARCHER	8,133	0	0.0	14	172.1	0	0.0	0	0.0
BAYLOR	4,262	0	0.0	0	0.0	0	0.0	0	0.0
BROWN	34,394	0	0.0	0	0.0	0	0.0	7	20.4
CALLAHAN	11,915	0	0.0	0	0.0	0	0.0	0	0.0
CLAY	10,029	0	0.0	0	0.0	0	0.0	2	19.9
COLEMAN	9,453	0	0.0	0	0.0	0	0.0	0	0.0
COMANCHE	13,268	1	7.5	50	376.8	0	0.0	0	0.0
COTTLE	2,209	0	0.0	0	0.0	0	0.0	0	0.0
EASTLAND	18,001	0	0.0	0	0.0	0	0.0	0	0.0
FISHER	4,747	0	0.0	0	0.0	0	0.0	0	0.0
FOARD	1,762	0	0.0	0	0.0	0	0.0	0	0.0
HARDEMAN	5,149	0	0.0	0	0.0	1	19.4	0	0.0
HASKELL	6,689	0	0.0	0	0.0	0	0.0	0	0.0
JACK	6,913	0	0.0	0	0.0	0	0.0	0	0.0
JONES	18,260	0	0.0	0	0.0	0	0.0	0	0.0
KENT	1,016	0	0.0	0	0.0	0	0.0	0	0.0
KNOX	4,777	0	0.0	0	0.0	0	0.0	0	0.0
MITCHELL	8,924	0	0.0	0	0.0	0	0.0	1	11.2
MONTAGUE	16.719	0	0.0	0	0.0	0	0.0	1	6.0
NOLAN	16,728	0	0.0	10	59.8	0	0.0	0	0.0
RUNNELS	11,297	1	8.9	0	0.0	0	0.0	1	8.9
SCURRY	18,746	0	0.0	1	5.3	0	0.0	0	0.0
SHACKELFORD	3,256	0	0.0	0	0.0	0	0.0	0	0.0
STEPHENS	9,294	0	0.0	1	10.8	1	10.8	2	21.5
STONEWALL	1,987	0	0.0	0	0.0	0	0.0	0	0.0
TAYLOR	123,491	5	4.0	154	124.7	0	0.0	4	3.2
THROCKMORTON	1,857	0	0.0	0	0.0	0	0.0	0	0.0
WICHITA	124,294	2	1.6	163	131.1	0	0.0	17	13.7
WILBARGER	15.174	0	0.0	1	6.6	0	0.0	0	0.0
YOUNG	17,701	0	0.0	1	5.6	0	0.0	0	0.0
REGIONAL TOTALS	530,445	9	1.7	395	74.5	2	0.4	35	6.6
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

REPORTED CASES OF SELECTED VACCINE PREVENTABLE DISEASES AND RATES PER 100,000 POPULATION

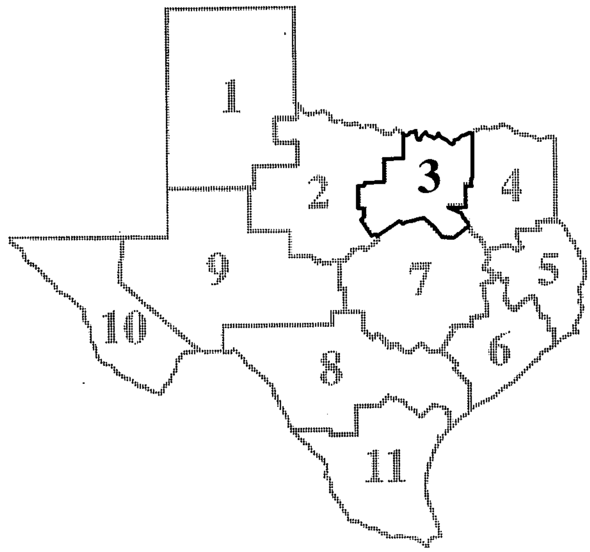
PUBLIC HEALTH REGION 2 - 1994

COUNTY	1994 POP.	MEASLES CASES	MEASLES RATE	MUMPS CASES	MUMPS RATE	PERTUSSIS CASES	PERTUSSIS RATE	RUBELLA CASES	RUBELLA RATE
ARCHER	8,133	1	12.3	0	0.0	0	0.0	0	0.0
BAYLOR	4,262	0	0.0	0	0.0	0	0.0	0	0.0
BROWN	34,394	0	0.0	0	0.0	0	0.0	0	0.0
CALLAHAN	11,915	0	0.0	0	0.0	0	0.0	0	0.0
CLAY	10,029	0	0.0	0	0.0	0	0.0	0	0.0
COLEMAN	9,453	0	0.0	0	0.0	0	0.0	0	0.0
COMANCHE	13,268	0	0.0	0	0.0	0	0.0	0	0.0
COTTLE	2,209	0	0.0	0	0.0	0	0.0	0	0.0
EASTLAND	18,001	0	0.0	0	0.0	1	5.6	0	0.0
FISHER	4,747	0	0.0	0	0.0	0	0.0	0	0.0
FOARD	1,762	0	0.0	0	0.0	0	0.0	0	0.0
HARDEMAN	5,149	0	0.0	0	0.0	0	0.0	0	0.0
HASKELL	6,689	0	0.0	0	0.0	0	0.0	0	0.0
JACK	6,913	0	0.0	0	0.0	0	0.0	0	0.0
JONES	18,260	0	0.0	0	0.0	0	0.0	0	0.0
KENT	1.016	0	0.0	0	0.0	0	0.0	0	0.0
KNOX	4,777	0	0.0	0	0.0	0	0.0	0	0.0
MITCHELL	8,924	0	0.0	0	0.0	0	0.0	0	0.0
MONTAGUE	16,719	0	0.0	0	0.0	0	0.0	0	0.0
NOLAN	16,728	0	0.0	0	0.0	0	0.0	0	0.0
RUNNELS	11,297	0	0.0	0	0.0	0	0.0	0	0.0
SCURRY	18,746	0	0.0	2	10.7	0	0.0	0	0.0
SHACKELFORD	3,256	0	0.0	0	0.0	0	0.0	0	0.0
STEPHENS	9,294	0	0.0	0	0.0	0	0.0	0	0.0
STONEWALL	1,987	0	0.0	1	50.3	0	0.0	0	0.0
TAYLOR	123,491	0	0.0	5	4.0	1	0.8	0	0.0
THROCKMORTON	1,857	0	0.0	0	0.0	0	0.0	0	0.0
WICHITA	124,294	0	0.0	4	3.2	1	0.8	0	0.0
WILBARGER	15,174	0	0.0	1	6.6	0	0.0	0	0.0
YOUNG	17,701	0	0.0	0	0.0	1	5.6	0	0.0
REGIONAL TOTALS	530,445	1	0.2	13	2.5	4	0.8	0	0.0
STATEWIDE TOTALS	18,286,827	17	0.1	234	1.3	160	0.9	9	0.0

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 2 - 1994

COUNTY	1994 POP.	CHLAMYDIA CASES	CHLAMYDIA RATE	GONORRHEA CASES	GONORRHEA RATE	P & S SYPHILIS CASES	P & S SYPHILIS RATE
ARCHER	8,133	11	135.3	4	49.2	0	0.0
BAYLOR	4,262	3	70.4	1	23.5	0	0.0
BROWN	34,394	56	162.8	24	69.8	11	32.0
CALLAHAN	11,915	11	92.3	0	0.0	0	0.0
CLAY	10,029	5	49.9	1	10.0	0	0.0
COLEMAN	9,453	16	169.3	1	10.6	0	0.0
COMANCHE	13,268	10	75.4	0	0.0	0	0.0
COTTLE	2,209	5	226.3	1	45.3	0	0.0
EASTLAND	18,001	11	61.1	5	27.8	0	0.0
FISHER	4,747	11	231.7	1	21.1	0	0.0
FOARD	1,762	2	113.5	0	0.0	0	0.0
HARDEMAN	5,149	6	116.5	0	0.0	0	0.0
HASKELL	6,689	11	164.4	8	119.6	0	0.0
JACK	6,913	4	57.9	1	14.5	1	14.5
JONES	18,260	11	60.2	8	43.8	0	0.0
KENT	1,016	0	0.0	0	0.0	0	0.0
KNOX	4,777	3	62.8	3	62.8	0	0.0
MITCHELL	8,924	23	257.7	9	100.9	0	0.0
MONTAGUE	16,719	8	47.9	5	29.9	0	0.0
NOLAN	16,728	67	400.5	32	191.3	0	0.0
RUNNELS	11,297	11	97.4	4	35.4	0	0.0
SCURRY	18,746	39	208.0	18	96.0	0	0.0
SHACKELFORD	3,256	2	61.4	0	0.0	0	0.0
STEPHENS	9,294	9	96.8	3	32.3	0	0.0
STONEWALL	1,987	2	100.7	0	0.0	0	0.0
TAYLOR	123,491	291	235.6	162	131.2	12	9.7
THROCKMORTON	1,857	0	0.0	0	0.0	0	0.0
WICHITA	124,294	477	383.8	265	213.2	5	4.0
WILBARGER	15,174	25	164.8	8	52.7	0	0.0
YOUNG	17,701	16	90.4	7	39.5	1	5.6
REGIONAL TOTALS	530,445	1,146	216.0	571	107.6	30	5.7
STATEWIDE TOTALS	18,286,827	46,046	251.8	29,757	162.7	1,913	10.5



PUBLIC HEALTH REGION 3

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 3 - 1994

COUNTY	1994 POP.	HEPATITIS A CASES	HEPATITIS A RATE	HEPATITIS B CASES	HEPATITIS B RATE	HEPATITIS C CASES	HEPATITIS C RATE	HEPATITIS UNSPECIFIED CASES	HEPATITIS UNSPECIFIED RATE
COLLIN	322,845	15	4.6	32	9.9	4	1.2	1	0.3
COOKE	31,470	6	19.1	0	0.0	0	0.0	0	0.0
DALLAS	1,987,680	263	13.2	372	18.7	17	0.9	10	0.5
DENTON	326,452	55	16.8	21	6.4	6	1.8	0	0.0
ELLIS	98,424	10	10.2	8	8.1	4	4.1	0	0.0
ERATH	29,607	10	33.8	1	3.4	1	3.4	0	0.0
FANNIN	24,880	0	0.0	0	0.0	1	4.0	0	0.0
GRAYSON	96.192	15	15.6	13	13.5	3	3.1	0	0.0
HOOD	34,067	2	5.9	1	2.9	0	0.0	0	0.0
HUNT	68,508	2	2.9	0	0.0	0	0.0	0	0.0
JOHNSON	112,100	25	22.3	8	7.1	5	4.5	0	0.0
KAUFMAN	59,525	2	3.4	5	8.4	2	3.4	0	0.0
NAVARRO	41,367	2	4.8	0	0.0	2	4.8	0	0.0
PALO PINTO	25,805	1	3.9	2	7.8	0	0.0	0	0.0
PARKER	75,721	3	4.0	0	0.0	0	0.0	0	0.0
ROCKWALL	31,161	1	3.2	3	9.6	1	3.2	0	0.0
SOMERVELL	5,793	1	17.3	0	0.0	0	0.0	0	0.0
TARRANT	1,314,613	151	11.5	165	12.6	38	2.9	2	0.2
WISE	38,253	11	28.8	2	5.2	2	5.2	0	0.0
REGIONAL TOTALS	4,724,463	575	12.2	633	13.4	86	1.8	13	0.3
STATEWIDE TOTALS	118,286,827	2,877	15.7	1,422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 3 - 1994

COUNTY	1994 POP.	AMEBIASIS CASES	AMEBIASIS RATE	CAMPYLOBACTER CASES	CAMPYLOBACTER RATE	SALMONELLOSIS CASES	SALMONELLOSIS RATE	SHIGELLOSIS CASES	SHIGELLOSIS RATE
COLLIN	322845	1	0.3	4	1.2	18	5.6	26	8.1
COOKE	31470	0	0.0	0	0.0	0	0.0	0	0.0
DALLAS	1,987,680	20	1.0	102	5.1	154	7.7	335	16.9
DENTON	326452	1	0.3	7	2.1	20	6.1	12	3.7
ELLIS	98424	0	0.0	5	5.1	4	4.1	28	28.4
ERATH	29607	0	0.0	0	0.0	1	3.4	0	0.0
FANNIN	24880	0	0.0	0	0.0	1	4.0	0	0.0
GRAYSON	96192	0	0.0	2	2.1	7	7.3	2	2.1
HOOD	34,067	1	2.9	0	0.0	4	11.7	3	8.8
HUNT	68508	1	1.5	0	0.0	10	14.6	3	4.4
JOHNSON	112100	0	0.0	0	0.0	12	10.7	3	2.7
KAUFMAN	59525	1	1.7	4	6.7	1	1.7	2	3.4
NAVARRO	41367	0	0.0	7	16.9	7	16.9	4	9.7
PALO PINTO	25805	0	0.0	0	0.0	3	11.6	0	0.0
PARKER	75721	0	0.0	0	0.0	4	5.3	1	1.3
ROCKWALL	31161	0	0.0	1	3.2	4	12.8	1	3.2
SOMERVELL	5793	0	0.0	0	0.0	0	0.0	0	0.0
TARRANT	1314613	0	0.0	50	3.8	95	7.2	61	4.6
WISE	38253	0	0.0	2	5.2	1	2.6	0	0.0
REGIONAL TOTALS	4,724,463	25	0.5	184	3.9	346	7.3	481	10.2
STATEWIDE TOTALS	18,286,827	110	0.6	997	5.5	1,983	10.8	2,410	13.2

REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 3 - 1994

		ASEPTIC MENINGITIS		CHICKENPOX		ENCEPHALITIS		TUBERCULOSIS	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
COLLIN	322,845	14	4.3	1,380	427.5	0	0.0	9	2.8
COOKE	31,470	0	0.0	0	0.0	0	0.0	0	0.0
DALLAS	1,987,680	170	8.6	13	0.7	1	0.1	321	16.1
DENTON	326,452	20	6.1	60	18.4	0	0.0	11	3.4
ELLIS	98,424	4	4.1	20	20.3	0	0.0	6	6.1
ERATH	29,607	1	3.4	0	0.0	0	0.0	3	10.1
FANNIN	24,880	2	8.0	0	0.0	0	0.0	3	12.1
GRAYSON	96,192	1	1.0	32	33.3	0	0.0	2	2.1
HOOD	34,067	3	8.8	0	0.0	0	0.0	1	2.9
HUNT	68,508	0	0.0	116	169.3	0	0.0	6	8.8
JOHNSON	112,100	2	1.8	3	2.7	0	0.0	2	1.8
KAUFMAN	59,525	3	5.0	0	0.0	0	0.0	1	1.7
NAVARRO	41,367	0	0.0	70	169.2	0	0.0	1	2.4
PALO PINTO	25,805	3	11.6	0	0.0	0	0.0	2	7.8
PARKER	75,721	1	1.3	0	0.0	0	0.0	3	4.0
ROCKWALL	31,161	4	12.8	0	0.0	0	0.0	2	6.4
SOMERVELL	5,793	0	0.0	0	0.0	0	0.0	1	17.3
TARRANT	1,314,613	126	9.6	277	21.1	1	0.1	168	12.8
WISE	38,253	1	2.6	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	4,724,463	355	7.5	1,971	41.7	2	0.0	542	11.5
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

REPORTED CASES OF SELECTED VACCINE PREVENTABLE DISEASES AND RATES PER 100,000 POPULATION

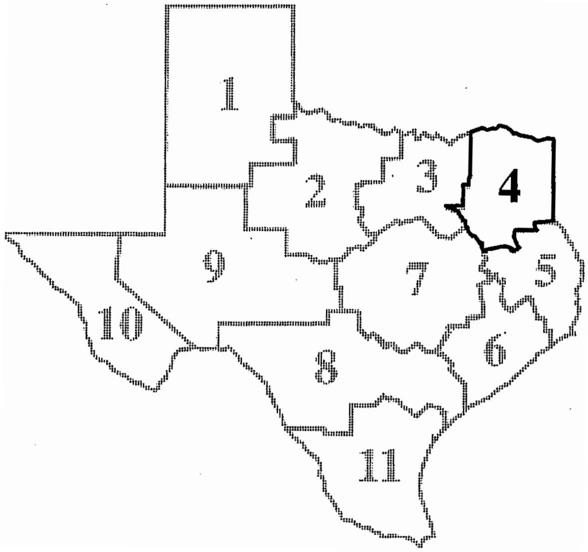
PUBLIC HEALTH REGION 3 - 1994

COUNTY	1994 POP.	MEASLES		MUMPS		PERTUSSIS		RUBELLA	
		CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
COLLIN	322,845	1	0.3	3	0.9	3	0.9	0	0.0
COOKE	31,470	0	0.0	1	3.2	0	0.0	0	0.0
DALLAS	1,987,680	1	0.1	16	0.8	19	1.0	0	0.0
DENTON	326,452	0	0.0	4	1.2	2	0.6	0	0.0
ELLIS	98,424	0	0.0	0	0.0	1	1.0	0	0.0
ERATH	29,607	0	0.0	0	0.0	0	0.0	0	0.0
FANNIN	24,880	0	0.0	0	0.0	0	0.0	0	0.0
GRAYSON	96,192	0	0.0	0	0.0	1	1.0	0	0.0
HOOD	34,067	0	0.0	0	0.0	0	0.0	0	0.0
HUNT	68,508	0	0.0	0	0.0	0	0.0	0	0.0
JOHNSON	112,100	0	0.0	0	0.0	0	0.0	0	0.0
KAUFMAN	59,525	0	0.0	2	3.4	0	0.0	0	0.0
NAVARRO	41,367	0	0.0	0	0.0	0	0.0	0	0.0
PALO PINTO	25,805	0	0.0	0	0.0	1	3.9	0	0.0
PARKER	75,721	0	0.0	1	1.3	0	0.0	0	0.0
ROCKWALL	31,161	0	0.0	0	0.0	0	0.0	0	0.0
SOMERVELL	5,793	0	0.0	0	0.0	0	0.0	0	0.0
TARRANT	1,314,613	8	0.6	14	1.1	7	0.5	0	0.0
WISE	38,253	0	0.0	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	4,724,463	10	0.2	41	0.9	34	0.7	0	0.0
STATEWIDE TOTALS	18,286,827	17	0.1	234	1.3	160	0.9	9	0.0

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 3 - 1994

COUNTY	1994 POP.	CHLAMYDIA CASES	CHLAMYDIA RATE	GONORRHEA CASES	GONORRHEA RATE	P & S SYPHILIS CASES	P & S SYPHILIS RATE
COLLIN	322,845	346	107.2	189	58.5	3	0.9
COOKE	31,470	84	266.9	15	47.7	3	9.5
DALLAS	1,987,680	3,909	196.7	6,170	310.4	292	14.7
DENTON	326,452	427	130.8	113	34.6	4	1.2
ELLIS	98,424	151	153.4	79	80.3	5	5.1
ERATH	29,607	65	219.5	6	20.3	0	0.0
FANNIN	24,880	46	184.9	23	92.4	1	4.0
GRAYSON	96,192	210	218.3	94	97.7	8	8.3
HOOD	34,067	20	58.7	8	23.5	0	0.0
HUNT	68,508	64	93.4	74	108.0	2	2.9
JOHNSON	112,100	139	124.0	27	24.1	0	0.0
KAUFMAN	59,525	75	126.0	49	82.3	2	3.4
NAVARRO	41,367	150	362.6	151	365.0	7	16.9
PALO PINTO	25,805	33	127.9	3	11.6	0	0.0
PARKER	75,721	55	72.6	11	14.5	1	1.3
ROCKWALL	31,161	14	44.9	3	9.6	0	0.0
SOMERVELL	5,793	1	17.3	0	0.0	0	0.0
TARRANT	1,314,613	2,437	185.4	2,752	209.3	190	14.5
WISE	38,253	30	78.4	14	36.6	0	0.0
REGIONAL TOTALS	4,724,463	8,256	174.8	9,781	207.0	518	11.0
STATEWIDE TOTALS	18,286,827	46,046	251.8	29,757	162.7	1,913	10.5



PUBLIC HEALTH REGION 4

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 4 - 1994

COUNTY	1994 POP.	HEPATITIS A CASES	HEPATITIS A RATE	HEPATITIS B CASES	HEPATITIS B RATE	HEPATITIS C CASES	HEPATITIS C RATE	HEPATITIS UNSPECIFIED CASES	HEPATITIS UNSPECIFIED RATE
ANDERSON	51,036	2	3.9	0	0.0	1	2.0	1	2.0
BOWIE	83,247	5	6.0	3	3.6	4	4.8	0	0.0
CAMP	10,252	0	0.0	1	9.8	0	0.0	0	0.0
CASS	29,855	1	3.4	1	3.4	0	0.0	0	0.0
CHEROKEE	41,758	2	4.8	1	2.4	0	0.0	0	0.0
DELTA	4,821	0	0.0	0	0.0	0 .	0.0	0	0.0
FRANKLIN	7,933	1	12.6	0	0.0	0	0.0	0	0.0
GREGG	106,400	12	11.3	14	13.2	1	0.9	1	0.9
HARRISON	59,611	2	3.4	0	0.0	0	0.0	0	0.0
HENDERSON	65,377	12	18.4	1	1.5	0	0.0	1	1.5
HOPKINS	29,222	0	0.0	2	6.8	0	0.0	0	0.0
LAMAR	43,930	0	0.0	0	0.0	0	0.0	0	0.0
MARION	10,156	1	9.8	1	9.8	0	0.0	0	0.0
MORRIS	13.012	0	0.0	2	15.4	0	0.0	0	0.0
PANOLA	22,763	0	0.0	0	0.0	0	0.0	1	4.4
RAINS	7,285	0	0.0	0	0.0	0	0.0	0	0.0
RED RIVER	14,074	0	0.0	2	14.2	0	0.0	0	0.0
RUSK	44,369	0	0.0	0	0.0	1	2.3	0	0.0
SMITH	158.319	6	3.8	8	5.1	1	0.6	1	0.6
TITUS	24,589	4	16.3	3	12.2	0	0.0	0	0.0
UPSHUR	32,259	0	0.0	0	0.0	0	0.0	0	0.0
VAN ZANDT	40,113	1	2.5	4	10.0	0	0.0	0	0.0
WOOD	30,998	6	19.4	1	3.2	1	3.2	2	6.5
REGIONAL TOTALS	931,379	55	5.9	44	4.7	9	1.0	7	0.8
STATEWIDE TOTALS	18,286,827	2,877	15.7	1,422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 4 - 1994

COUNTY	1994 POP.	AMEBIASIS CASES	AMEBIASIS RATE	CAMPYLOBACTER CASES	CAMPYLOBACTER RATE	SALMONELLOSIS CASES	SALMONELLOSIS RATE	SHIGELLOSIS CASES	SHIGELLOSIS RATE
ANDERSON	51,036	0	0.0	1	2.0	8	15.7	8	15.7
BOWIE	83,247	0	0.0	6	7.2	10	12.0	1	1.2
CAMP	10,252	0	0.0	0	0.0	0	0.0	0	0.0
CASS	29,855	0	0.0	0	0.0	2	6.7	1	3.4
CHEROKEE	41,758	0	0.0	2	4.8	4	9.6	15	35.9
DELTA	4,821	0	0.0	0	0.0	0	0.0	0	0.0
FRANKLIN	7,933	0	0.0	0	0.0	2	25.2	0	0.0
GREGG	106,400	0	0.0	2	1.9	6	5.6	4	3.8
HARRISON	59,611	0	0.0	0	0.0	0	0.0	0	0.0
HENDERSON	65,377	0	0.0	3	1.6	5	7.6	1	1.5
HOPKINS	29,222	0	0.0	0	0.0	1	3.4	0	0.0
LAMAR	43,930	0	0.0	1	2.3	1	2.3	1	2.3
MARION	10,156	0	0.0	0	0.0	0	0.0	0	0.0
MORRIS	13,012	0	0.0	1	7.7	0	0.0	0	0.0
PANOLA	22,763	0	0.0	0	0.0	0	0.0	0	0.0
RAINS	7,285	0	0.0	0	0.0	0	0.0	0	0.0
RED RIVER	14,074	0	0.0	0	0.0	0	0.0	0	0.0
RUSK	44,369	0	0.0	1	2.3	2	4.5	1	2.3
SMITH	158,319	0	0.0	3	1.9	33	20.8	28	17.7
TITUS	24,589	0	0.0	0	0.0	11	44.7	5	20.3
UPSHUR	32,259	0	0.0	0	0.0	0	0.0	0	0.0
VAN ZANDT	40,113	0	0.0	1	2.5	4	10.0	0	0.0
WOOD	30,998	0	0.0	0	0.0	2	6.5	1	3.2
REGIONAL TOTALS	931,379	0	0.0	21	2.3	91	9.8	66	7.1
STATEWIDE TOTALS	18,286,827	110	0.6	997	5.5	1,983	10.8	2,410	13.2

REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 4 - 1994

COUNTY	1994 POP.	ASEPTIC MENINGITIS CASES	ASEPTIC MENINGITIS RATE	CHICKENPOX CASES	CHICKENPOX RATE	ENCEPHALITIS CASES	ENCEPHALITIS RATE	TUBERCULOSIS CASES	TUBERCULOSIS RATE
ANDERSON	51,036	0	0.0	0	0.0	0	0.0	7	13.7
BOWIE	83,247	22	26.4	63	75.7	6	7.2	6	7.2
CAMP	10,252	1	9.8	0	0.0	0	0.0	1	9.8
CASS	29,855	5	16.7	0	0.0	0	0.0	1	3.4
CHEROKEE	41,758	0	0.0	0	0.0	0	0.0	10	23.9
DELTA	4,821	0	0.0	3	62.2	0	0.0	0	0.0
FRANKLIN	7,933	2	25.2	0	0.0	1	12.6	0	0.0
GREGG	106,400	10	9.4	22	20.7	0	0.0	8	7.5
HARRISON	59.611	1	1.7	12	20.1	0	0.0	3	5.0
HENDERSON	65,377	4	6.1	4	6.1	0	0.0	3	4.6
HOPKINS	29,222	2	6.8	0	0.0	1	3.4	4	13.7
LAMAR	43,930	1	2.3	1	2.3	0	0.0	9	20.5
MARION	10,156	1	9.8	0	0.0	0	0.0	0	0.0
MORRIS	13,012	5	38.4	0	0.0	0	0.0	2	15.4
PANOLA	22,763	0	0.0	0	0.0	0	0.0	3	13.2
RAINS	7,285	0	0.0	0	0.0	0	0.0	1	13.7
RED RIVER	14,074	1	7.1	0	0.0	0	0.0	1	7.1
RUSK	44,369	1	2.3	0	0.0	0	0.0	2	4.5
SMITH	158,319	7	4.4	144	91.0	0	0.0	10	6.3
TITUS	24,589	15	61.0	0	0.0	0	0.0	1	4.1
UPSHUR	32,259	2	6.2	0	0.0	0	0.0	1	3.1
VAN ZANDT	40.113	2	5.0	38	94.7	0	0.0	2	5.0
WOOD	30,998	2	6.5	50	161.3	0	0.0	5	16.1
REGIONAL TOTALS	931,379	84	9.0	337	36.2	8	0.9	80	8.6
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

REPORTED CASES OF SELECTED VACCINE PEVENTABLE DISEASES AND RATES PER 100,000 POPULATION

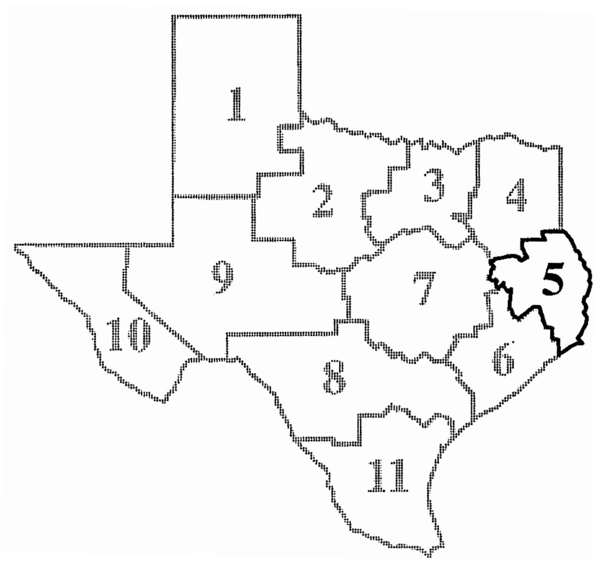
PUBLIC HEALTH REGION 4 - 1994

COUNTY	1994 POP.	MEASLES CASES	MEASLES RATE	MUMPS CASES	MUMPS RATE	PERTUSSIS CASES	PERTUSSIS RATE	RUBELLA CASES	RUBELLA RATE
ANDERSON	51,036	0	0.0	0	0.0	0	0.0	0	0.0
BOWIE	83,247	0	0.0	3	3.6	1	1.2	0	0.0
CAMP	10,252	0	0.0	0	0.0	0	0.0	0	0.0
CASS	29,855	0	0.0	0	0.0	0	0.0	0	0.0
CHEROKEE	41,758	0	0.0	0	0.0	2	4.8	0	0.0
DELTA	4,821	0	0.0	0	0.0	0	0.0	0	0.0
FRANKLIN	7,933	0	0.0	0	0.0	0	0.0	0	0.0
GREGG	106,400	0	0.0	0	0.0	0	0.0	0	0.0
HARRISON	59.611	0	0.0	1	1.7	0	0.0	0	0.0
HENDERSON	65,377	0	0.0	0	0.0	2	3.1	0	0.0
HOPKINS	29,222	0	0.0	0	0.0	0	0.0	0	0.0
LAMAR	43,930	0	0.0	0	0.0	0	0.0	0	0.0
MARION	10,156	0	0.0	0	0.0	0	0.0	0	0.0
MORRIS	13,012	0	0.0	0	0.0	0	0.0	0	0.0
PANOLA	22,763	0	0.0	0	0.0	0	0.0	0	0.0
RAINS	7,285	0	0.0	0	0.0	0	0.0	0	0.0
RED RIVER	14,074	0	0.0	0	0.0	0	0.0	0	0.0
RUSK	44,369	0	0.0	1	2.3	0	0.0	0	0.0
SMITH	158,319	0	0.0	1	0.6	0	0.0	0	0.0
TITUS	24,589	0	0.0	0	0.0	0	0.0	0	0.0
UPSHUR	32,259	0	0.0	0	0.0	0	0.0	0	0.0
VAN ZANDT	40.113	0	0.0	1	2.5	0	0.0	0	0.0
WOOD	30,998	0	0.0	1	3.2	0	0.0	0	0.0
REGIONAL TOTALS	931,379	0	0.0	8	0.9	5	0.5	0	0.0
STATEWIDE TOTALS	18,286,827	17	0.1	234	1.3	160	0.9	9	0.0

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 4 - 1994

COUNTY	1994 POP.	CHLAMYDIA CASES	CHLAMYDIA RATE	GONORRHEA CASES	GONORRHEA RATE	P & S SYPHILIS CASES	P & S SYPHILIS RATE
ANDERSON	51,036	35	68.6	12	23.5	3	5.9
BOWIE	83,247	280	336.3	111	133.3	14	16.8
CAMP	10,252	3	29.3	8	78.0	7	68.3
CASS	29,855	25	83.7	18	60.3	0	0.0
CHEROKEE	41,758	27	64.7	65	155.7	3	7.2
DELTA	4,821	3	62.2	0	0.0	0	0.0
FRANKLIN	7,933	2	25.2	1	12.6	0	0.0
GREGG	106,400	143	134.4	42	39.5	35	32.9
HARRISON	59,611	137	229.8	227	380.8	21	35.2
HENDERSON	65,377	39	59.7	33	50.5	1	1.5
HOPKINS	29,222	27	92.4	9	30.8	1	3.4
LAMAR	43,930	69	157.1	58	132.0	3	6.8
MARION	10,156	10	98.5	9	88.6	6	59.1
MORRIS	13,012	22	169.1	22	169.1	14	107.6
PANOLA	22,763	48	210.9	15	65.9	6	26.4
RAINS	7,285	0	0.0	1	13.7	0	0.0
RED RIVER	14,074	11	78.2	14	99.5	0	0.0
RUSK	44,369	35	78.9	9	20.3	5	11.3
SMITH	158,319	514	324.7	536	338.6	7	4.4
TITUS	24,589	39	158.6	18	73.2	7	28.5
UPSHUR	32,259	25	77.5	15	46.5	6	18.6
VAN ZANDT	40,113	36	89.7	1	2.5	2	5.0
WOOD	30,998	13	41.9	5	16.1	2	6.5
REGIONAL TOTALS	931,379	1,543	165.7	1,229	132.0	143	15.4
STATEWIDE TOTALS	18,286,827	46,046	251.8	29,757	162.7	1,913	10.5



PUBLIC HEALTH REGION 5

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 5 - 1994

		HEPATITIS A		HEPATITIS B		HEPATITIS C		HEPATITIS UNSPECIFIED	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
ANGELINA	72,001	7	9.7	2	2.8	0	0.0	1	1.4
HARDIN	41,994	1	2.4	4	9.5	3	7.1	0	0.0
HOUSTON	21,509	0	0.0	0	0.0	0	0.0	0	0.0
JASPER	31,372	2	6.4	7	22.3	1	3.2	0	0.0
JEFFERSON	239,405	7	2.9	23	9.6	11	4.6	1	0.4
NACOGDOCHES	55,562	1	1.8	2	3.6	0	0.0	0	0.0
NEWTON	13,993	0	0.0	0	0.0	0	0.0	0	0.0
ORANGE	81,447	0	0.0	3	3.7	1	1.2	0	0.0
POLK	34,466	1	2.9	1	2.9	0	0.0	1	2.9
SABINE	9,891	0	0.0	0	0.0	0	0.0	0	0.0
SAN AUGUSTINE	7,973	0	0.0	0	0.0	0	0.0	0	0.0
SAN JACINTO	18,268	0	0.0	0	0.0	0	0.0	0	0.0
SHELBY	21,926	0	0.0	0	0.0	0	0.0	0	0.0
TRINITY	12,054	1	8.3	1	8.3	0	0.0	0	0.0
TYLER	17,940	0	0.0	2	11.1	0	0.0	0	0.0
REGIONAL TOTALS	680,001	20	2.9	45	6.6	16	2.4	3	0.4
STATEWIDE TOTALS	118,286,827	2,877	15.7	1,422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 5 - 1994

		AMEBIASIS		CAMPYLOBACTER		SALMONELLOSIS		SHIGELLOSIS	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
ANGELINA	72,001	0	0.0	2	2.8	0	0.0	1	1.4
HARDIN	41,994	0	0.0	0	0.0	7	16.7	2	4.8
HOUSTON	21,509	0	0.0	0	0.0	0	0.0	1	4.6
JASPER	31,372	0	0.0	0	0.0	0	0.0	3	9.6
JEFFERSON	239,405	0	0.0	12	5.0	19	7.9	10	4.2
NACOGDOCHES	55,562	0	0.0	11	19.8	11	19.8	2	3.6
NEWTON	13,993	0	0.0	0	0.0	1	7.1	2	14.3
ORANGE	81,447	0	0.0	4	4.9	6	7.4	0	0.0
POLK	34,666	0	0.0	0	0.0	0	0.0	0	0.0
SABINE	9,891	0	0.0	0	0.0	2	20.2	0	0.0
SAN AUGUSTINE	7,973	0	0.0	0	0.0	0	0.0	0	0.0
SAN JACINTO	18,268	0	0.0	2	10.9	0	0.0	0	0.0
SHELBY	21,926	0	0.0	0	0.0	2	9.1	3	13.7
TRINITY	12,054	0	0.0	0	0.0	0	0.0	0	0.0
TYLER	17,940	0	0.0	0	0.0	3	16.7	0	0.0
REGIONAL TOTALS	680.001	0	0.0	31	4.6	51	7.5	24	3.5
STATEWIDE TOTALS	18,286,827	110	0.6	997	5.5	1,983	10.8	2.410	13.2

REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 5 - 1994

COUNTY	1994 POP.	ASEPTIC MENINGITIS CASES	ASEPTIC MENINGITIS RATE	CHICKENPOX CASES	CHICKENPOX RATE	ENCEPHALITIS CASES	ENCEPHALITIS RATE	TUBERCULOSIS CASES	TUBERCULOSIS RATE
ANGELINA	72,001	2	2.8	0	0.0	0	0.0	5	6.9
HARDIN	41,994	1	2.4	8	19.1	0	0.0	1	2.4
HOUSTON	21,509	1	4.6	0	0.0	0	0.0	1	4.6
JASPER	31,372	1	3.2	267	851.1	0	0.0	3	9.6
JEFFERSON	239,405	0	0.0	210	87.7	2	0.8	23	9.6
NACOGDOCHES	55,562	1	1.8	30	54.0	0	0.0	5	9.0
NEWTON	13,993	0	0.0	1	7.1	0	0.0	0	0.0
ORANGE	81,447	2	2.5	10	12.3	0	0.0	2	2.5
POLK	34,666	0	0.0	4	11.5	0	0.0	8	23.1
SABINE	9,891	1	10.1	0	0.0	0	0.0	3	30.3
SAN AUGUSTINE	7,973	0	0.0	0	0.0	0	0.0	1	12.5
SAN JACINTO	18,268	0	0.0	0	0.0	0	0.0	4	21.9
SHELBY	21,926	0	0.0	0	0.0	0	0.0	4	18.2
TRINITY	12,054	0	0.0	3	24.9	1	8.3	5	41.5
NLER	17,940	0	0.0	5	27.9	0	0.0	3	16.7
REGIONAL TOTALS	680,001	9	1.3	538	79.1	3	0.4	68	10.0
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

REPORTED CASES OF SELECTED VACCINE PREVENTABLE DISEASES AND RATES PER 100,000 POPULATION

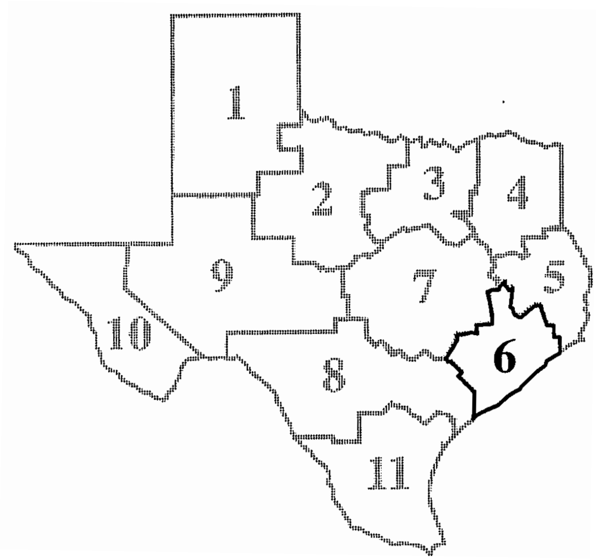
PUBLIC HEALTH REGION 5 - 1994

COUNTY	1994 POP.	MEASLES CASES	MEASLES RATE	MUMPS CASES	MUMPS RATE	PERTUSSIS CASES	PERTUSSIS RATE	RUBELLA CASES	RUBELLA RATE
ANGELINA	72,001	0	0.0	1	1.4	0	0.0	0	0.0
HARDIN	41,994	0	0.0	0	0.0	0	0.0	0	0.0
HOUSTON	21,509	0	0.0	0	0.0	0	0.0	0	0.0
JASPER	31,372	0	0.0	0	0.0	0	0.0	0	0.0
JEFFERSON	239,405	0	0.0	3	1.3	0	0.0	0	0.0
NACOGDOCHES	55,562	0	0.0	0	0.0	0	0.0	0	0.0
NEWTON	13,993	0	0.0	0	0.0	0	0.0	0	0.0
ORANGE	81,447	0	0.0	2	2.5	0	0.0	0	0.0
POLK	34,666	0	0.0	0	0.0	0	0.0	0	0.0
SABINE	9,891	0	0.0	0	0.0	0	0.0	0	0.0
SAN AUGUSTINE	7,973	0	0.0	0	0.C	0	0.0	0	0.0
SAN JACINTO	18,268	0	0.0	0	0.0	0	0.0	0	0.0
SHELBY	21,926	0	0.0	0	0.0	0	0.0	0	0.0
TRINITY	12,054	0	0.0	0	0.0	0	0.0	0	0.0
TYLER	17,940	0	0.0	1	5.6	0	0.0	0	0.0
REGIONAL TOTALS	680,001	0	0.0	7	1.0	0	0.0	0	0.0
STATEWIDE TOTALS	18,286,827	17	0.1	234	1.3	160	0.9	9	0.0

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 5 - 1994

COUNTY	1994 POP.	CHLAMYDIA CASES	CHLAMYDIA RATE	GONORRHEA CASES	GONORRHEA RATE	P & S SYPHILIS CASES	P & S SYPHILIS RATE
ANGELINA	72,001	266	369.4	196	272.2	12	16.7
HARDIN	41,994	33	78.6	38	90.5	1	2.4
HOUSTON	21,509	36	167.4	30	139.5	8	37.2
JASPER	31,372	105	334.7	112	357.0	7	22.3
JEFFERSON	239,405	607	253.5	687	287.0	202	84.4
NACOGDOCHES	55,562	101	181.8	31	55.8	7	12.6
NEWTON	13,993	24	171.5	18	128.6	0	0.0
ORANGE	81,447	60	73.7	30	36.8	5	6.1
POLK	34,666	48	138.5	29	83.7	4	11.5
SABINE	9,891	5	50.6	4	40.4	0	0.0
SAN AUGUSTINE	7,973	9	112.9	4	50.2	1	12.5
SAN JACINTO	18,268	3	16.4	2	10.9	0	0.0
SHELBY	21,926	27	123.1	10	45.6	8	36.5
TRINITY	12,054	5	41.5	5	41.5	1	8.3
TYLER	17,940	16	89.2	12	66.9	5	27.9
REGIONAL TOTALS	680,001	1,345	197.8	1,208	177.6	261	38.4
STATEWIDE TOTALS	18,286,827	46,046	251.8	29,757	162.7	1,913	10.5



PUBLIC HEALTH REGION 6

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 6 - 1994

		HEPATITIS A		HEPATITIS B		HEPATITIS C		HEPATITIS UNSPECIFIED	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
AUSTIN	20,225	0	0.0	0	0.0	0	0.0	0	0.0
BRAZORIA	204,989	12	5.9	1	0.5	0	0.0	0	0.0
CHAMBERS	20,457	1	4.9	0	0.0	0	0.0	0	0.0
COLORADO	18,299	1	5.5	0	0.0	0	0.0	0	0.0
FORT BEND	272,233	16	5.9	5	1.8	2	0.7	1	0.4
GALVESTON	225.311	24	10.7	20	8.9	4	1.8	0	0.0
HARRIS	3,004,010	475	15.8	204	6.8	32	1.1	11	0.4
LIBERTY	55,541	4	7.2	1	1.8	0	0.0	0	0.0
MATAGORDA	37,544	0	0.0	1	2.7	0	0.0	0	0.0
MONTGOMERY	204,821	0	0.0	1	0.5	2	1.0	0	0.0
WALKER	55,413	6	10.8	18	32.5	0	0.0	0	0.0
WALLER	25,036	1	4.0	0	0.0	0	0.0	0	0.0
WHARTON	40,284	1	2.5	1	2.5	0	0.0	0	0.0
REGIONAL TOTALS	4,184,163	541	12.9	252	6.0	40	1.0	12	0.3
STATEWIDE TOTALS	18,286,827	2,877	15.7	1,422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 6 - 1994

		AMEBIASIS		CAMPYLOBACTER		SALMONELLOSIS		SHIGELLOSIS	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
AUSTIN	20,225	0	0.0	0	0.0	0	0.0	0	0.0
BRAZORIA	204,989	0	0.0	11	5.4	13	6.3	24	11.7
CHAMBERS	20,457	0	0.0	0	0.0	1	4.9	0	0.0
COLORADO	18,299	0	0.0	0	0.0	0	0.0	1	5.5
FORT BEND	272,233	0	0.0	12	4.4	8	2.9	23	8.4
GALVESTON	225,311	1	0.4	19	8.4	25	11.1	27	12.0
HARRIS	3,004,010	7	0.2	149	5.0	150	5.0	168	5.6
LIBERTY	55,541	0	0.0	5	9.0	0	0.0	3	5.4
MATAGORDA	37,544	0	0.0	0	0.0	0	0.0	0	0.0
MONTGOMERY	204,821	0	0.0	2	1.0	3	1.5	5	2.4
WALKER	55,413	0	0.0	0	0.0	3	5.4	1	1.8
WALLER	25,036	0	0.0	0	0.0	2	8.0	1	4.0
WHARTON	40,284	0	0.0	0	0.0	1	2.5	1	2.5
REGIONAL TOTALS	4,184,163	8	0.2	198	4.7	206	4.9	254	6.1
STATEWIDE TOTALS	18,286,827	110	0.6	997	5.5	1,983	10.8	2,410	13.2

REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 6 - 1994

COUNTY	1994 POP.	ASEPTIC MENINGITIS CASES	ASEPTIC MENINGITIS RATE	CHICKENPOX CASES	CHICKENPOX RATE	ENCEPHALITIS CASES	ENCEPHALITIS RATE	TUBERCULOSIS CASES	TUBERCULOSIS RATE
AUSTIN	20,225	0	0.0	0	0.0	0	0.0	1	4.9
BRAZORIA	204,989	5	2.4	36	17.6	0	0.0	14	6.8
CHAMBERS	20,457	0	0.0	144	703.9	0	0.0	1	4.9
COLORADO	18,299	1	5.5	0	0.0	0	0.0	0	0.0
FORT BEND	272,233	4	1.5	65	23.9	0	0.0	22	8.1
GALVESTON	225,311	18	8.0	420	186.4	1	0.4	25	11.1
HARRIS	3,004,010	149	5.0	5,091	169.5	10	0.3	747	24.9
LIBERTY	55,541	2	3.6	7	12.6	0	0.0	8	14.4
MATAGORDA	37,544	0	0.0	0	0.0	0	0.0	1	2.7
MONTGOMERY	204,821	8	3.9	0	0.0	3	1.5	27	13.2
WALKER	55,413	0	0.0	92	166.0	0	0.0	5	9.0
WALLER	25,036	0	0.0	9	35.9	0	0.0	6	24.0
WHARTON	40,284	0	0.0	13	32.3	0	0.0	3	7.4
REGIONAL TOTALS	4,184,163	187	4.5	5,877	140.5	14	0.3	860	20.6
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

TB totals from Region 6 do not include cases from the Texas Department of Corrections (cases = 61, rate 61.9/100,000). These cases are included in the statewide totals.

REPORTED CASES OF SELECTED VACCINE PREVENTABLE DISEASES AND RATES PER 100,000 POPULATION

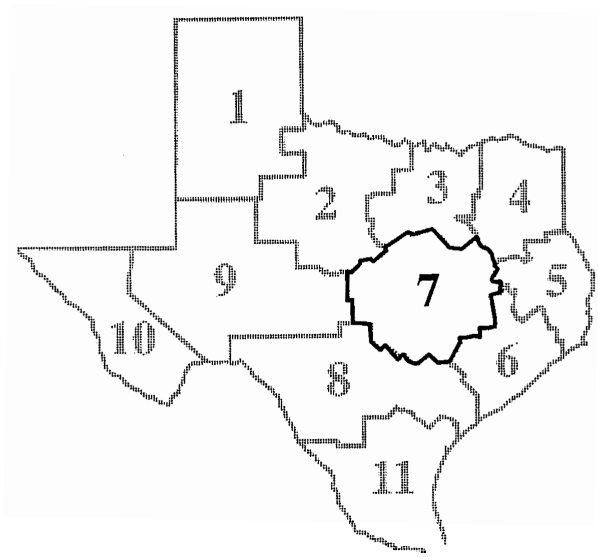
PUBLIC HEALTH REGION 6 - 1994

		MEASLES		MUMPS		PERTUSSIS		RUBELLA	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
AUSTIN	20,225	0	0.0	0	0.0	0	0.0	0	0.0
BRAZORIA	204,989	0	0.0	0	0.0	2	1.0	0	0.0
CHAMBERS	20,457	0	0.0	2	9.8	0	0.0	0	0.0
COLORADO	18,299	0	0.0	0	0.0	0	0.0	0	0.0
FORT BEND	272,233	0	0.0	1	0.4	0	0.0	0	0.0
GALVESTON	225,311	0	0.0	4	1.8	0	0.0	0	0.0
HARRIS	3,004,010	3	0.1	35	1.2	10	0.3	0	0.0
LIBERTY	55,541	0	0.0	0	0.0	0	0.0	0	0.0
MATAGORDA	37,544	0	0.0	0	0.0	0	0.0	0	0.0
MONTGOMERY	204,821	0	0.0	1	0.5	0	0.0	0	0.0
WALKER	55,413	0	0.0	1	1.8	0	0.0	0	0.0
WALLER	25,036	0	0.0	0	0.0	0	0.0	0	0.0
WHARTON	40,284	0	0.0	2	5.0	0	0.0	0	0.0
REGIONAL TOTALS	4,184,163	3	0.1	46	1.1	12	0.3	0	0.0
STATEWIDE TOTALS	18,286,827	17	0.1	234	1.3	160	0.9	9	0.0

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 6 - 1994

COUNTY	1994 POP.	CHLAMYDIA CASES	CHLAMYDIA RATE	GONORRHEA CASES	GONORRHEA RATE	P & S SYPHILIS CASES	P & S SYPHILIS RATE
AUSTIN	20,225	23	113.7	18	89.0	0	0.0
BRAZORIA	204,989	349	170.3	188	91.7	3	1.5
CHAMBERS	20,457	18	88.0	5	24.4	0	0.0
COLORADO	18,299	29	158.5	25	136.6	0	0.0
FORT BEND	272,233	142	52.2	99	36.4	3	1.1
GALVESTON	225,311	1,029	456.7	566	251.2	24	10.7
HARRIS	3,004,010	9,309	309.9	7,324	243.8	439	14.6
LIBERTY	55,541	63	113.4	28	50.4	1	1.8
MATAGORDA	37,544	87	231.7	56	149.2	1	2.7
MONTGOMERY	204,821	273	133.3	142	69.3	13	6.3
WALKER	55,413	199	359.1	88	158.8	67	120.9
WALLER	25,036	179	715.0	74	295.6	13	51.9
WHARTON	40,284	77	191.1	49	121.6	5	12.4
REGIONAL TOTALS	4,184,163	11,777	281.5	8,662	207.0	569	13.6
STATEWIDE TOTALS	18,286,827	46,046	251.8	29,757	162.7	1,913	10.5



PUBLIC HEALTH REGION 7

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 7 - 1994

		HEPATITIS A		HEPATITIS B		HEPATITIS C		HEPATITIS UNSPECIFIED	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
BASTROP	44,324	16	36.1	1	2.3	1	2.3	0	0.0
BELL	199,784	38	19.0	10	5.0	9	4.5	2	1.0
BLANCO	6,512	0	0.0	0	0.0	0	0.0	0	0.0
BOSQUE	15,542	0	0.0	0	0.0	0	0.0	1	6.4
BRAZOS	124,385	17	13.7	8	6.4	0	0.0	0	0.0
BURLESON	14,340	0	0.0	0	0.0	1	7.0	0	0.0
BURNET	24,723	15	60.7	1	4.0	2	8.1	1	4.0
CALDWELL	29,088	0	0.0	0	0.0	0	0.0	0	0.0
CORYELL	67,739	0	0.0	1	1.5	0	0.0	0	0.0
FALLS	18,462	2	10.8	3	16.3	1	5.4	0	0.0
FAYETTE	20,220	1	4.9	0	0.0	1	4.9	0	0.0
FREESTONE	16,657	0	0.0	0	0.0	0	0.0	0	0.0
GRIMES	20,491	0	0.0	2	9.8	1	4.9	0	0.0
HAMILTON	7,525	0	0.0	1	13.3	0	0.0	0	0.0
HAYS	77,700	2	2.6	2	2.6	1	1.3	0	0.0
HILL	27,755	1	3.6	1	3.6	0	0.0	0	0.0
LAMPASAS	13,975	0	0.0	0	0.0	0	0.0	0	0.0
LEE	13,635	1	7.3	0	0.0	0	0.0	0	0.0
LEON	13,896	0	0.0	0	0.0	0	0.0	0	0.0
LIMESTONE	21,223	3	14.1	1	4.7	0	0.0	0	0.0
LLANO	12,028	0	0.0	0	0.0	0	0.0	0	0.0
MCLENNAN	190,509	7	3.7	4	2.1	1	0.5	0	0.0
MADISON	11,467	0	0.0	1	8.7	0	0.0	0	0.0
MILAM	23,028	0	0.0	0	0.0	1	4.3	1	4.3
MILLS	4,473	0	0.0	0	0.0	0	0.0	0	0.0
ROBERTSON	16,124	4	24.8	0	0.0	0	0.0	0	0.0
SAN SABA	5,897	1	17.0	0	0.0	0	0.0	0	0.0
TRAVIS	605,804	96	15.8	36	5.9	21	3.5	4	0.7
WASHINGTON	27,321	0	0.0	1	3.7	0	0.0	0	0.0
WILLIAMSON	169,613	21	12.4	9	5.3	3	1.8	1	0.6
REGIONAL TOTALS	1,844,240	225	12.2	82	4.4	43	2.3	10	0.5
STATEWIDE TOTALS	18,286,827	2,877	15.7	1,422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 7 - 1994

COUNTY	1994 POP.	AMEBIASIS CASES	AMEBIASIS RATE	CAMPYLOBACTER CASES	CAMPYLOBACTER RATE	SALMONELLOSIS CASES	SALMONELLOSIS RATE	SHIGELLOSIS CASES	SHIGELLOSIS RATE
BASTROP	44,324	1	2.3	5	11.3	8	18.0	4	9.0
BELL	199,784	1	0.5	1	0.5	51	25.5	90	45.0
BLANCO	6,512	0	0.0	0	0.0	0	0.0	0	0.0
BOSQUE	15,542	0	0.0	0	0.0	4	25.7	0	0.0
BRAZOS	124,385	0	0.0	6	4.8	5	4.0	10	8.0
BURLESON	14,340	0	0.0	1	7.0	0	0.0	0	0.0
BURNET	24,723	0	0.0	1	4.0	1	4.0	2	8.1
CALDWELL	29,088	0	0.0	1	3.4	1	3.4	2	6.9
CORYELL	67,739	0	0.0	0	0.0	8	11.8	4	5.9
FALLS	18,462	0	0.0	0	0.0	8	43.3	0	0.0
FAYETTE	20,220	0	0.0	0	0.0	0	0.0	0	0.0
FREESTONE	16,657	0	0.0	1	6.0	1	6.0	2	12.0
GRIMES	20,491	0	0.0	2	9.8	2	9.8	1	4.9
HAMILTON	7,525	0	0.0	0	0.0	3	39.9	0	0.0
HAYS	77,700	1	1.3	6	7.7	14	18.0	55	70.8
HILL	27,755	0	0.0	2	7.2	2	7.2	0	0.0
LAMPASAS	13,975	0	0.0	0	0.0	5	35.8	17	121.6
LEE	13,635	0	0.0	0	0.0	1	7.3	1	7.3
LEON	13,896	0	0.0	0	0.0	1	7.2	0	0.0
LIMESTONE	21,223	0	0.0	2	9.4	1	4.7	0	0.0
LLANO	12,028	1	8.3	0	0.0	0	0.0	0	0.0
MCLENNAN	190,509	0	0.0	9	4.7	28	14.7	17	8.9
MADISON	11,467	0	0.0	0	0.0	2	17.4	0	0.0
MILAM	23,028	0	0.0	1	4.3	3	13.0	1	4.3
MILLS	4,473	0	0.0	0	0.0	0	0.0	0	0.0
ROBERTSON	16,124	0	0.0	0	0.0	3	18.6	0	0.0
SAN SABA	5,897	0	0.0	0	0.0	0	0.0	0	0.0
TRAVIS	605,804	20	3.3	82	13.5	131	21.6	130	21.5
WASHINGTON	27,321	0	0.0	2	7.3	2	7.3	0	0.0
WILLIAMSON	169,613	0	0.0	13	7.7	24	14.2	27	15.9
REGIONAL TOTALS	1,844,240	24	1.3	135	7.3	309	16.8	363	19.7
STATEWIDE TOTALS	18,286,827	110	0.6	997	5.5	1,983	10.8	2,410	13.2

REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 7 - 1994

COUNTY	1994 POP.	ASEPTIC MENINGITIS CASES	ASEPTIC MENINGITIS RATE	CHICKENPOX CASES	CHICKENPOX RATE	ENCEPHALITIS CASES	ENCEPHALITIS RATE	TUBERCULOSIS CASES	TUBERCULOSIS RATE
BASTROP	44,324	2	4.5	1	2.3	0	0.0	7	15.8
BELL	199,784	7	3.5	457	228.7	0	0.0	15	7.5
BLANCO	6,512	0	0.0	0	0.0	0	0.0	0	0.0
BOSQUE	15,542	0	0.0	0	0.0	0	0.0	0	0.0
BRAZOS	124,385	2	1.6	184	147.9	0	0.0	9	7.2
BURLESON	14,340	0	0.0	0	0.0	0	0.0	1	7.0
BURNET	24,723	1	4.0	0	0.0	1	4.0	6	24.3
CALDWELL	29,088	1	3.4	1	3.4	0	0.0	1	3.4
CORYELL	67,739	0	0.0	1	1.5	0	0.0	0	0.0
FALLS	18,462	1	5.4	0	0.0	0	0.0	1	5.4
FAYETTE	20,220	1	4.9	5	24.7	0	0.0	0	0.0
FREESTONE	16,657	0	0.0	0	0.0	0	0.0	0	0.0
GRIMES	20,491	1	4.9	0	0.0	0	0.0	0	0.0
HAMILTON	7,525	0	0.0	0	0.0	0	0.0	0	0.0
HAYS	77,700	0	0.0	189	243.2	1	1.3	1	1.3
HILL	27,755	1	3.6	0	0.0	0	0.0	1	3.6
LAMPASAS	13,975	0	0.0	5	35.8	0	0.0	0	0.0
LEE	13,635	0	0.0	0	0.0	0	0.0	1	7.3
LEON	13,896	0	0.0	0	0.0	0	0.0	1	7.2
LIMESTONE	21,223	0	0.0	1	4.7	0	0.0	3	14.1
LLANO	12,028	1	8.3	0	0.0	0	0.0	0	0.0
MCLENNAN	190,509	0	0.0	192	100.8	0	0.0	11	5.8
MADISON	11,467	2	17.4	1	8.7	1	8.7	1	8.7
MILAM	23,028	0	0.0	32	139.0	0	0.0	0	0.0
MILLS	4,473	0	0.0	0	0.0	0	0.0	0	0.0
ROBERTSON	16,124	0	0.0	0	0.0	0	0.0	1	6.2
SAN SABA	5,897	0	0.0	1	17.0	0	0.0	0	0.0
TRAVIS	605,804	53	8.7	900	148.6	5	0.8	94	15.5
WASHINGTON	27,321	0	0.0	0	0.0	0	0.0	3	11.0
WILLIAMSON	169,613	5	2.9	148	87.3	2	1.2	6	3.5
REGIONAL TOTALS	1,844,240	78	4.2	12,118	114.8	10	0.5	163	8.8
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

REPORTED CASES OF SELECTED VACCINE PREVENTABLE DISEASES AND RATES PER 100,000 POPULATION

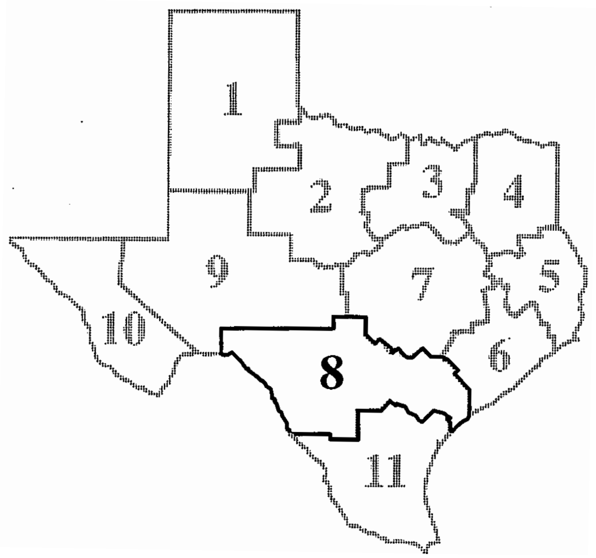
PUBLIC HEALTH REGION 7 - 1994

COUNTY	1994 POP.	MEASLES CASES	MEASLES RATE	MUMPS CASES	MUMPS RATE	PERTUSSIS CASES	PERTUSSIS RATE	RUBELLA CASES	RUBELLA RATE
BASTROP	44.324	0	0.0	0	0.0	0	0.0	0	0.0
BELL	199,784	0	0.0	0	0.0	1	0.5	0	0.0
BLANCO	6,512	0	0.0	0	0.0	0	0.0	0	0.0
BOSQUE	15,542	0	0.0	0	0.0	0	0.0	0	0.0
BRAZOS	124,385	0	0.0	1	0.8	3	2.4	0	0.0
BURLESON	14.340	0	0.0	1	7.0	0	0.0	0	0.0
BURNET	24,723	0	0.0	0	0.0	1	4.0	1	4.0
CALDWELL	29,088	0	0.0	0	0.0	0	0.0	0	0.0
CORYELL	67,739	0	0.0	0	0.0	0	0.0	0	0.0
FALLS	18,462	0	0.0	0	0.0	0	0.0	0	0.0
FAYETTE	20,220	0	0.0	0	0.0	0	0.0	0	0.0
FREESTONE	16,657	0	0.0	0	0.0	1	6.0	0	0.0
GRIMES	20,491	0	0.0	0	0.0	0	0.0	0	0.0
HAMILTON	7,525	0	0.0	0	0.0	0	0.0	0	0.0
HAYS	77,700	0	0.0	0	0.0	1	1.3	0	0.0
HILL	27,755	0	0.0	0	0.0	0	0.0	0	0.0
LAMPASAS	13,975	0	0.0	0	0.0	0	0.0	0	0.0
LEE	13,635	0	0.0	0	0.0	0	0.0	0	0.0
LEON	13,896	0	0.0	0	0.0	0	0.0	0	0.0
LIMESTONE	21,223	0	0.0	0	0.0	0	0.0	0	0.0
LLANO	12,028	0	0.0	0	0.0	0	0.0	0	0.0
MCLENNAN	190,509	0	0.0	0	0.0	2	1.1	0	0.0
MADISON	11,467	0	0.0	0	0.0	0	0.0	0	0.0
MILAM	23,028	0	0.0	0	0.0	0	0.0	0	0.0
MILLS	4,473	0	0.0	0	0.0	0	0.0	0	0.0
ROBERTSON	16,124	0	0.0	0	0.0	0	0.0	0	0.0
SAN SABA	5,897	0	0.0	0	0.0	0	0.0	0	0.0
TRAVIS	605,804	1	0.2	6	1.0	16	2.6	1	0.2
WASHINGTON	27,321	0	0.0	0	0.0	0	0.0	0	0.0
WILLIAMSON	169,613	0	0.0	2	1.2	0	0.0	0	0.0
REGIONAL TOTALS	1,844,240	1	0.1	10	0.5	25	1.4	2	0.1
STATEWIDE TOTALS	18,286,827	17	0.1	234	1.3	160	0.9	9	0.0

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100.000 POPULATION

PUBLIC HEALTH REGION 7 - 1994

COUNTY	1994 POP.	CHLAMYDIA CASES	CHLAMYDIA RATE	GONORRHEA CASES	GONORRHEA RATE	P & S SYPHILIS CASES	P & S SYPHILIS RATE
BASTROP	44,324	59	133.1	21	47.4	0	0.0
BELL	199,784	1,592	796.9	925	463.0	41	20.5
BLANCO	6,512	1	15.4	0	0.0	0	0.0
BOSQUE	15,542	21	135.1	2	12.9	0	0.0
BRAZOS	124,385	407	327.2	232	186.5	34	27.3
BURLESON	14,340	44	306.8	26	181.3	3	20.9
BURNET	24,723	49	198.2	3	12.1	0	0.0
CALDWELL	29,088	23	79.1	16	55.0	0	0.0
CORYELL	67,739	118	174.2	42	62.0	2	3.0
FALLS	18,462	58	314.2	64	346.7	1	5.4
FAYETTE	20,220	43	212.7	22	108.8	7	34.6
FREESTONE	16,657	32	192.1	8	48.0	2	12.0
GRIMES	20,491	66	322.1	50	244.0	13	63.4
HAMILTON	7,525	5	66.4	2	26.6	0	0.0
HAYS	77,700	305	392.5	64	82.4	2	2.6
HILL	27,755	29	104.5	18	64.9	7	25.2
LAMPASAS	13,975	39	279.1	2	14.3	0	0.0
LEE	13,635	16	117.3	19	139.3	0	0.0
LEON	13,896	12	86.4	7	50.4	2	14.4
LIMESTONE	21,223	87	409.9	69	325.1	2	9.4
LLANO	12,028	10	83.1	2	16.6	0	0.0
MCLENNAN	190,509	1,141	598.9	728	382.1	17	8.9
MADISON	11,467	21	183.1	23	200.6	0	0.0
MILAM	23,028	69	299.6	38	165.0	3	13.0
MILLS	4,473	0	0.0	0	0.0	0	0.0
ROBERTSON	16,124	52	322.5	52	322.5	7	43.4
SAN SABA	5,897	4	67.8	1	17.0	0	0.0
TRAVIS	605,804	2,572	424.6	1,349	222.7	60	9.9
WASHINGTON	27,321	45	164.7	61	223.3	b	22.0
WILLIAMSON	169,613	137	80.8	49	28.9	1	0.6
REGIONAL TOTALS	1,844,240	7,057	382.7	3,895	211.2	210	11.4
STATEWIDE TOTALS	18,286,827	46,046	251.8	29,757	162.7	1,913	10.5



PUBLIC HEALTH REGION 8

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 8 - 1994

COUNTY	1994 POP.	HEPATITIS A CASES	HEPATITIS A RATE	HEPATITIS B CASES	HEPATITIS B RATE	HEPATITIS C CASES	HEPATITIS C RATE	HEPATITIS UNSPECIFIED CASES	HEPATITIS UNSPECIFIED RATE
ATASCOSA	33,223	4	12.0	1	3.0	0	0.0	0	0.0
BANDERA	11,985	0	0.0	0	0.0	0	0.0	0	0.0
BEXAR	1,268,744	185	14.6	84	6.6	5	0.4	1	0.1
CALHOUN	19,533	0	0.0	0	0.0	0	0.0	0	0.0
COMAL	60,767	4	6.6	0	0.0	3	4.9	0	0.0
DE WITT	19,839	2	10.1	0	0.0	0	0.0	0	0.0
DIMMIT	10,770	0	0.0	0	0.0	0	0.0	0	0.0
EDWARDS	2,366	1	42.3	0	0.0	0	0.0	0	0.0
FRIO	15,113	31	205.1	1	6.6	1	6.6	0	0.0
GILLESPIE	18,375	3	16.3	1	5.4	0	0.0	0	0.0
GOLIAD	6,276	0	0.0	0	0.0	0	0.0	0	0.0
GONZALES	17,609	4	22.7	1	5.7	0	0.0	0	0.0
GUADALUPE	72,838	3	4.1	1	1.4	2	2.7	0	0.0
JACKSON	13.126	3	22.9	0	0.0	1	7.6	0	0.0
KARNES	12,768	0	0.0	0	0.0	0	0.0	0	0.0
KENDALL	16,448	1	6.1	0	0.0	0	0.0	0	0.0
KERR	38,858	30	77.2	5	12.9	0	0.0	5	12.9
KINNEY	3,243	0	0.0	0	0.0	0	0.0	0	0.0
LA SALLE	6.111	3	49.1	0	0.0	0	0.0	0	0.0
LAVACA	18,405	3	16.3	1	5.4	0	0.0	0	0.0
MAVERICK	39,609	64	161.6	1	2.5	0	0.0	1	2.5
MEDINA	30,496	4	13.1	0	0.0	0	0.0	2	6.6
REAL	2,483	1	40.3	0	0.0	0	0.0	0	0.0
UVALDE	24,375	7	28.7	1	4.1	1	4.1	0	0.0
VAL VERDE	41,185	59	143.3	2	4.9	3	7.3	0	0.0
VICTORIA	76,952	2	2.6	6	7.8	7	9.1	0	0.0
WILSON	25,639	5	19.5	0	0.0	0	0.0	0	0.0
ZAVALA	12,803	1	7.8	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	1,919,939	420	21.9	105	5.5	23	1.2	9	0.5
STATEWIDE TOTALS	18,286827	2,877	15.7	1.422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 8 - 1994

COUNTY	1994 POP.	AMEBIASIS CASES	AMEBIASIS RATE	CAMPYLOBACTER CASES	CAMPYLOBACTER RATE	SALMONELLOSIS CASES	SALMONELLOSIS RATE	SHIGELLOSIS CASES	SHIGELLOSIS RATE
ATASCOSA	33,223	0	0.0	0	0.0	3	9.0	0	0.0
BANDERA	11,985	0	0.0	2	16.7	0	0.0	2	16.7
BEXAR	1,268,744	6	0.5	133	10.5	144	11.4	313	24.7
CALHOUN	19,533	0	0.0	0	0.0	7	35.8	0	0.0
COMAL	60,767	0	0.0	3	4.9	18	29.6	36	59.2
DE WITT	19,839	0	0.0	2	10.1	1	5.0	1	5.0
DIMMIT	10,770	0	0.0	0	0.0	1	9.3	3	27.9
EDWARDS	2,366	0	0.0	0	0.0	1	423	0	0.0
FRIO	15,113	0	0.0	0	0.0	0	0.0	2	13.2
GILLESPIE	18,375	0	0.0	0	0.0	2	10.9	1	5.4
GOLIAD	6,276	0	0.0	0	0.0	4	63.7	0	0.0
GONZALES	17,609	0	0.0	1	5.7	1	5.7	0	0.0
GUADALUPE	72,838	0	0.0	5	6.9	3	4.1	48	65.9
JACKSON	13,126	0	0.0	2	15.2	1	7.6	1	7.6
KARNES	12,768	0	0.0	0	0.0	1	7.8	0	0.0
KENDALL	16,448	0	0.0	0	0.0	3	18.2	1	6.1
KERR	38,858	0	0.0	4	10.3	4	10.3	6	15.4
KINNEY	3,243	0	0.0	0	0.0	0	0.0	0	0.0
LA SALLE	6111	0	0.0	0	0.0	0	0.0	0	0.0
LAVACA	18,405	0	0.0	2	10.9	2	10.9	2	10.9
MAVERICK	39,609	0	0.0	0	0.0	5	12.6	9	227
MEDINA	30,496	0	0.0	0	0.0	3	9.8	1	3.3
REAL	2,483	1	40.3	0	0.0	0	0.0	1	40.3
UVALDE	24,375	9	36.9	0	0.0	10	41.0	17	69.7
VAL VERDE	41,185	0	0.0	13	31.6	13	31.6	7	17.0
VICTORIA	76,952	1	1.3	11	14.3	47	61.1	10	13.0
WILSON	25,639	0	0.0	0	0.0	3	11.7	1	3.9
ZAVALA	12,803	0	0.0	0	0.0	0	0.0	5	39.1
REGIONAL TOTALS	1,919,939	17	0.9	178	9.3	277	14.4	467	24.3
STATEWIDE TOTALS	18,286,827	110	0.6	997	5.5	1,983	10.8	2,410	13.2

REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 8 - 1994

COUNTY	1994 POP.	ASEPTIC MENINGITIS CASES	ASEPTIC MENINGITIS RATE	CHICKENPOX CASES	CHICKENPOX RATE	ENCEPHALITIS CASES	ENCEPHALITIS RATE	TUBERCULOSIS CASES	TUBERCULOSIS RATE
ATASCOSA	33,223	2	6.0	1	3.0	0	0.0	3	9.0
BANDERA	11,985	1	8.3	0	0.0	0	0.0	1	8.3
BEXAR	1,268,744	117	9.2	0	0.0	1	0.1	121	9.5
CALHOUN	19,533	0	0.0	0	0.0	0	0.0	4	20.5
COMAL	60,767	7	11.5	119	195.8	0	0.0	5	8.2
DE WITT	19,839	0	0.0	70	352.8	1	5.0	2	10.1
DIMMIT	10,770	0	0.0	0	0.0	0	0.0	2	18.6
EDWARDS	2,366	0	0.0	0	0.0	0	0.0	0	0.0
FRIO	15,113	1	6.6	156	1,032.2	0	0.0	2	13.2
GILLESPIE	18,375	0	0.0	0	0.0	0	0.0	0	0.0
GOLIAD	6.276	0	0.0	0	0.0	0	0.0	0	0.0
GONZALES	17,609	0	0.0	5	28.4	0	0.0	3	17.0
GUADALUPE	72,838	1	1.4	20	27.5	0	0.0	9	12.4
JACKSON	13,126	1	7.6	11	83.8	1	7.6	3	22.9
KARNES	12,768	0	0.0	0	0.0	0	0.0	0	0.0
KENDALL	16,448	0	0.0	0	0.0	0	0.0	0	0.0
KERR	38,858	4	10.3	41	105.5	0	0.0	5	12.9
KINNEY	3,243	0	0.0	0	0.0	0	0.0	0	0.0
LA SALLE	6,111	0	0.0	0	0.0	0	0.0	0	0.0
LAVACA	18,405	0	0.0	0	0.0	0	0.0	0	0.0
MAVERICK	39,609	3	7.6	187	472.1	0	0.0	22	55.5
MEDINA	30,496	2	6.6	0	0.0	0	0.0	1	3.3
REAL	2,483	0	0.0	0	0.0	0	0.0	1	40.3
UVALDE	24,375	0	0.0	63	258.5	0	0.0	3	12.3
VAL VERDE	41,185	0	0.0	137	332.6	0	0.0	11	26.7
VICTORIA	76,952	2	2.6	313	406.7	2	2.6	6	7.8
WILSON	25,639	0	0.0	6	23.4	0	0.0	3	11.7
ZAVALA	12,803	0	0.0	40	312.4	0	0.0	0	0.0
REGIONAL TOTALS	1,919,939	141	7.3	1,169	60.9	5	0.3	207	10.8
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

REPORTED CASES OF SELECTED VACCINE PREVENTABLE DISEASES AND RATES PER 100,000 POPULATION

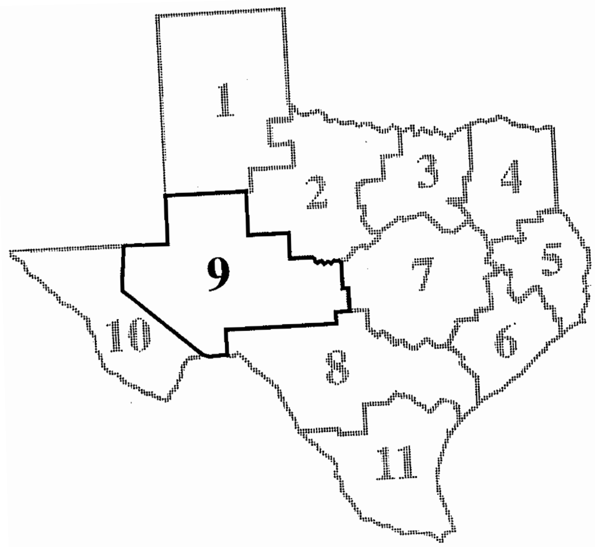
PUBLIC HEALTH REGION 8 - 1994

COUNTY	1994 POP.	MEASLES CASES	MEASLES RATE	MUMPS CASES	MUMPS RATE	PERTUSSIS CASES	PERTUSSIS RATE	RUBELLA CASES	RUBELLA RATE
ATASCOSA	33,223	0	0.0	2	6.0	0	0.0	0	0.0
BANDERA	11,985	0	0.0	0	0.0	0	0.0	0	0.0
BEXAR	1,268,744	1	0.1	2	0.2	15	1.2	1	0.1
CALHOUN	19,533	0	0.0	0	0.0	0	0.0	0	0.0
COMAL	60,767	0	0.0	1	1.6	0	0.0	0	0.0
DE WITT	19,839	0	0.0	0	0.0	0	0.0	0	0.0
DIMMIT	10,770	0	0.0	0	0.0	0	0.0	0	0.0
EDWARDS	2,366	0	0.0	0	0.0	0	0.0	0	0.0
FRIO	15.113	0	0.0	2	13.2	0	0.0	0	0.0
GILLESPIE	18,375	0	0.0	0	0.0	0	0.0	0	0.0
GOLIAD	6,276	0	0.0	0	0.0	0	0.0	0	0.0
GONZALES	17,609	0	0.0	0	0.0	0	0.0	0	0.0
GUADALUPE	72,838	0	0.0	0	0.0	2	2.7	0	0.0
JACKSON	13,126	0	0.0	0	0.0	0	0.0	0	0.0
KARNES	12,768	0	0.0	0	0.0	1	7.8	0	0.0
KENDALL	16,448	0	0.0	2	12.2	0	0.0	0	0.0
KERR	38,858	0	0.0	3	7.7	0	0.0	0	0.0
KINNEY	3,243	0	0.0	0	0.0	0	0.0	0	0.0
LA SALLE	6.111	0	0.0	0	0.0	0	0.0	0	0.0
LAVACA	18,405	0	0.0	1	5.4	1	5.4	0	0.0
MAVERICK	39,609	0	0.0	13	32.8	2	5.0	0	0.0
MEDINA	30,496	0	0.0	0	0.0	0	0.0	0	0.0
REAL	2,483	0	0.0	0	0.0	0	0.0	0	0.0
UVALDE	24,375	0	0.0	0	0.0	0	0.0	0	0.0
VAL VERDE	41,185	0	0.0	0	0.0	0	0.0	0	0.0
VICTORIA	76,952	0	0.0	0	0.0	0	0.0	0	0.0
WILSON	25,639	0	0.0	0	0.0	0	0.0	0	0.0
ZAVALA	12,803	0	0.0	1	7.8	1	7.8	0	0.0
REGIONAL TOTALS	1,919,939	1	0.1	27	1.4	22	1.1	1	0 .
STATEWIDE TOTALS	18,286,827	17	0.1	234	1.3	160	0.9	9	0.0

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 8 - 1994

COUNTY	1994 POP.	CHLAMYDIA CASES	CHLAMYDIA RATE	GONORRHEA CASES	GONORRHEA RATE	P & S SYPHILIS CASES	P & S SYPHILIS RATE
ATASCOSA	33,223	30	90.3	2	6.0	0	0.0
BANDERA	11,985	14	116.8	4	33.4	0	0.0
BEXAR	1,268,744	4,519	356.2	1,738	137.0	62	4.9
CALHOUN	19,533	14	71.7	6	30.7	2	10.2
COMAL	60,767	80	131.7	18	29.6	1	1.6
DE WITT	19,839	22	110.9	7	35.3	0	0.0
DIMMIT	10,770	32	297.1	5	46.4	0	0.0
EDWARDS	2,366	2	84.5	2	84.5	0	0.0
FRIO	15,113	42	277.9	3	19.9	0	0.0
GILLESPIE	18,375	27	146.9	2	10.9	0	0.0
GOLIAD	6,276	6	95.6	1	15.9	0	0.0
GONZALES	17,609	48	272.6	39	221.5	0	0.0
GUADALUPE	72,838	91	124.9	21	28.8	0	0.0
JACKSON	13,126	27	205.7	11	83.8	2	15.2
KARNES	12,768	29	227.1	4	31.3	1	7.8
KENDALL	16,448	10	60.8	0	0.0	0	0.0
KERR	38,858	45	115.8	20	51.5	0	0.0
KINNEY	3,243	2	61.7	1	30.8	0	0.0
LA SALLE	6111	20	327.3	1	16.4	0	0.0
LAVACA	18,405	15	81.5	18	97.8	0	0.0
MAVERICK	39,609	24	60.6	1	2.5	0	0.0
MEDINA	30,496	43	141.0	6	19.7	0	0.0
REAL	2,483	3	120.8	0	0.0	0	0.0
UVALDE	24,375	101	414.4	6	24.6	0	0.0
VAL VERDE	41,185	134	325.4	13	31.6	0	0.0
VICTORIA	76,952	353	458.7	203	263.8	17	22.1
WILSON	25,639	41	159.9	2	7.8	0	0.0
ZAVALA	12,803	58	453.0	8	625	2	15.6
REGIONAL TOTALS	1,919,939	5,832	303.8	2,142	111.6	87	4.5
STATEWIDE TOTALS	18,286,827	46,046	251.8	29,757	162.7	1,913	10.5



PUBLIC HEALTH REGION 9

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 9 - 1994

COUNTY	1994 POP.	HEPATITIS A CASES	HEPATITIS A RATE	HEPATITIS B CASES	HEPATITIS B RATE	HEPATITIS C CASES	HEPATITIS C RATE	HEPATITIS UNSPECIFIED CASES	HEPATITIS UNSPECIFIED RATE
ANDREWS	14,814	2	13.5	0	0.0	0	0.0	1	6.8
BORDEN	814	0	0.0	0	0.0	0	0.0	0	0.0
COKE	3,421	0	0.0	0	0.0	0	0.0	0	0.0
CONCHO	3,150	0	0.0	0	0.0	0	0.0	0	0.0
CRANE	4,866	0	0.0	1	20.6	0	0.0	0	0.0
CROCKETT	4.185	0	0.0	0	0.0	0	0.0	0	0.0
DAWSON	15,375	1	6.5	1	6.5	0	0.0	0	0.0
ECTOR	123,130	15	12.2	8	6.5	20	16.2	1	0.8
GAINES	14,507	3	20.7	0	0.0	0	0.0	0	0.0
GLASSCOCK	1,527	0	0.0	0	0.0	0	0.0	0	0.0
HOWARD	32.123	6	18.7	1	3.1	0	0.0	0	0.0
IRION	1,680	0	0.0	0	0.0	0	0.0	0	0.0
KIMBLE	4,113	1	24.3	0	0.0	0	0.0	0	0.0
LOVING	110	0	0.0	0	0.0	0	0.0	0	0.0
MCCULLOCH	8,775	1	11.4	1	11.4	0	0.0	0	0.0
MARTIN	5,170	2	38.7	0	0.0	0	0.0	0	0.0
MASON	3,358	0	0.0	0	0.0	0	0.0	0	0.0
MENARD	2,284	0	0.0	0	0.0	0	0.0	0	0.0
MIDLAND	115,529	13	11.3	9	7.8	5	4.3	0	0.0
PECOS	16,677	0	0.0	0	0.0	0	0.0	0	0.0
REAGAN	4,774	0	0.0	0	0.0	0	0.0	0	0.0
REEVES	16,577	0	0.0	7	42.2	0	0.0	0	0.0
SCHLEICHER	3,089	0	0.0	0	0.0	0	0.0	0	0.0
STERLING	1,485	0	0.0	0	0.0	0	0.0	0	0.0
SUTTON	4,290	1	23.3	0	0.0	0	0.0	0	0.0
TERRELL	1,458	0	0.0	0	0.0	0	0.0	0	0.0
TOM GREEN	103,922	7	6.7	3	2.9	3	2.9	0	0.0
UPTON	4,611	0	0.0	0	0.0	0	0.0	0	0.0
WARD	13,248	1	7.5	0	0.0	0	0.0	0	0.0
WINKLER	8,758	0	0.0	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	537,820	53	9.9	31	5.8	28	5.2	2	0.4
STATEWIDE TOTALS	118,286,827	2,877	15.7	1,422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 9 - 1994

COUNTY	1994 POP.	AMEBIASIS CASES	AMEBIASIS RATE	CAMPYLOBACTER CASES	CAMPYLOBACTER RATE	SALMONELLOSIS CASES	SALMONELLOSIS RATE	SHIGELLOSIS CASES	SHIGELLOSIS RATE
ANDREWS	14,814	0	0.0	0	0.0	2	13.5	0	0.0
BORDEN	814	0	0.0	0	0.0	0	0.0	0	0.0
COKE	3,421	0	0.0	1	29.2	0	0.0	0	0.0
CONCHO	3,150	0	0.0	1	31.7	0	0.0	1	31.7
CRANE	4,866	0	0.0	0	0.0	0	0.0	0	0.0
CROCKETT	4,185	0	0.0	2	47.8	0	0.0	0	0.0
DAWSON	15,375	0	0.0	0	0.0	0	0.0	0	0.0
ECTOR	123,130	0	0.0	1	0.8	33	26.8	15	12.2
GAINES	14,507	0	0.0	0	0.0	0	0.0	0	0.0
GLASSCOCK	1,527	0	0.0	0	0.0	0	0.0	0	0.0
HOWARD	32,123	0	0.0	0	0.0	15	46.7	41	127.6
IRION	1,680	0	0.0	0	0.0	0	0.0	0	0.0
KIMBLE	4,113	0	0.0	0	0.0	0	0.0	0	0.0
LOVING	110	0	0.0	0	0.0	0	0.0	0	0.0
MCCULLOCH	8,775	0	0.0	1	11.4	1	11.4	0	0.0
MARTIN	5.170	0	0.0	0	0.0	0	0.0	4	77.4
MASON	3,358	0	0.0	0	0.0	0	0.0	0	0.0
MENARD	2,284	0	0.0	1	43.8	0	0.0	0	0.0
MIDLAND	115,529	0	0.0	2	1.7	11	9.5	20	17.3
PECOS	16,677	0	0.0	0	0.0	3	18.0	1	6.0
REAGAN	4,774	0	0.0	0	0.0	0	0.0	0	0.0
REEVES	16,577	0	0.0	0	0.0	1	6.0	0	0.0
SCHLEICHER	3,089	0	0.0	0	0.0	0	0.0	0	0.0
STERLING	1,485	0	0.0	0	0.0	0	0.0	0	0.0
SUTTON	4,290	0	0.0	0	0.0	0	0.0	1	23.3
TERRELL	1,458	0	0.0	0	0.0	0	0.0	0	0.0
TOM GREEN	103,922	1	1.0	24	23.1	21	20.2	38	36.6
UPTON	4.611	0	0.0	0	0.0	0	0.0	0	0.0
WARD	13,248	0	0.0	0	0.0	0	0.0	1	7.5
WINKLER	8,758	0	0.0	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	537,820	1	0.2	33	6.1	87	16.2	122	22.7
STATEWIDE TOTALS	18,286,827	110	0.6	997	5.5	1,983	10.8	2,410	13.2

REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 9 - 1994

COUNTY	1994 POP.	ASEPTIC MENINGITIS CASES	ASEPTIC MENINGITIS RATE	CHICKENPOX CASES	CHICKENPOX RATE	ENCEPHALITIS CASES	ENCEPHALITIS RATE	TUBERCULOSIS CASES	TUBERCULOSIS RATE
ANDREWS	14,814	0	0.0	0	0.0	0	0.0	2	13.5
BORDEN	814	0	0.0	0	0.0	0	0.0	0	0.0
COKE	3,421	1	29.2	0	0.0	0	0.0	0	0.0
CONCHO	3,150	0	0.0	0	0.0	0	0.0	1	31.7
CRANE	4,866	0	0.0	0	0.0	0	0.0	0	0.0
CROCKETT	4,185	0	0.0	0	0.0	0	0.0	0	0.0
DAWSON	15,375	0	0.0	0	0.0	0	0.0	0	0.0
ECTOR	123,130	5	4.1	67	54.4	0	0.0	10	8.1
GAINES	14,507	0	0.0	0	0.0	0	0.0	1	6.9
GLASSCOCK	1,527	0	0.0	0	0.0	0	0.0	0	0.0
HOWARD	32,123	0	0.0	11	34.2	0	0.0	1	3.1
IRION	1,680	0	0.0	0	0.0	0	0.0	0	0.0
KIMBLE	4,113	0	0.0	0	0.0	0	0.0	0	0.0
LOVING	110	0	0.0	0	0.0	0	0.0	0	0.0
MCCULLOCH	8,775	1	11.4	0	0.0	0	0.0	2	22.8
MARTIN	5170	0	0.0	0	0.0	0	0.0	0	0.0
MASON	3,358	0	0.0	0	0.0	0	0.0	0	0.0
MENARD	2,284	0	0.0	0	0.0	0	0.0	0	0.0
MIDLAND	115,529	3	26	226	195.6	1	0.9	6	5.2
PECOS	16,677	0	0.0	3	18.0	0	0.0	2	12.0
REAGAN	4,774	0	0.0	0	0.0	0	0.0	0	0.0
REEVES	16,577	0	0.0	23	138.7	0	0.0	5	30.2
SCHLEICHER	3,089	0	0.0	0	0.0	0	0.0	0	0.0
STERLING	1,485	0	0.0	0	0.0	0	0.0	0	0.0
SUTTON	4,290	0	0.0	0	0.0	0	0.0	0	0.0
TERRELL	1,458	0	0.0	0	0.0	0	0.0	0	0.0
TOM GREEN	103,922	26	25.0	138	132.8	0	0.0	5	4.8
UPTON	4.611	0	0.0	0	0.0	0	0.0	0	0.0
WARD	13,248	0	0.0	8	60.4	0	0.0	0	0.0
WINKLER	8,758	0	0.0	0	0.0	0	0.0	2	22.8
REGIONAL TOTALS	537,820	36	6.7	476	88.5	1	0.2	37	6.9
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

REPORTED CASES OF SELECTED VACCINE PREVENTABLE DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 9 - 1994

COUNTY	1994 POP.	MEASLES		MUMPS		PERTUSSIS		RUBELLA	
		CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
ANDREWS	14,814	0	0.0	2	13.5	0	0.0	0	0.0
BORDEN	814	0	0.0	0	0.0	0	0.0	0	0.0
COKE	3,421	0	0.0	0	0.0	0	0.0	0	0.0
CONCHO	3,150	0	0.0	0	0.0	0	0.0	0	0.0
CRANE	4,866	0	0.0	0	0.0	0	0.0	0	0.0
CROCKETT	4,185	0	0.0	0	0.0	0	0.0	0	0.0
DAWSON	15,375	0	0.0	0	0.0	0	0.0	0	0.0
ECTOR	123,130	0	0.0	3	2.4	1	0.8	0	0.0
GAINES	14,507	0	0.0	0	0.0	0	0.0	0	0.0
GLASSCOCK	1,527	0	0.0	0	0.0	0	0.0	0	0.0
HOWARD	32,123	0	0.0	0	0.0	0	0.0	0	0.0
IRION	1,680	0	0.0	0	0.0	0	0.0	0	0.0
KIMBLE	4.113	0	0.0	0	0.0	0	0.0	0	0.0
LOVING	110	0	0.0	0	0.0	0	0.0	0	0.0
MCCULLOCH	8,775	0	0.0	0	0.0	3	34.2	0	0.0
MARTIN	5,170	0	0.0	0	0.0	0	0.0	0	0.0
MASON	3,358	0	0.0	0	0.0	0	0.0	0	0.0
MENARD	2,284	0	0.0	0	0.0	0	0.0	0	0.0
MIDLAND	115,529	0	0.0	2	1.7	1	0.9	0	0.0
PECOS	16,677	0	0.0	0	0.0	0	0.0	0	0.0
REAGAN	4,774	0	0.0	1	20.9	0	0.0	0	0.0
REEVES	16,577	0	0.0	0	0.0	0	0.0	0	0.0
SCHLEICHER	3,089	0	0.0	0	0.0	0	0.0	0	0.0
STERLING	1,485	0	0.0	0	0.0	0	0.0	0	0.0
SUTTON	4,290	0	0.0	0	0.0	0	0.0	2	46.6
TERRELL	1,458	0	0.0	0	0.0	0	0.0	0	0.0
TOM GREEN	103,922	0	0.0	1	1.0	18	17.3	0	0.0
UPTON	4,611	0	0.0	0	0.0	0	0.0	0	0.0
WARD	13,248	0	0.0	0	0.0	0	0.0	0	0.0
WINKLER	8,758	0	0.0	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	537,820	0	0.0	9	1.7	2 3	4.3	2	0.4
STATEWIDE TOTALS	18,286,827	17	0.1	234	1.3	160	0.9	9	0.0

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100,000 POPULATION

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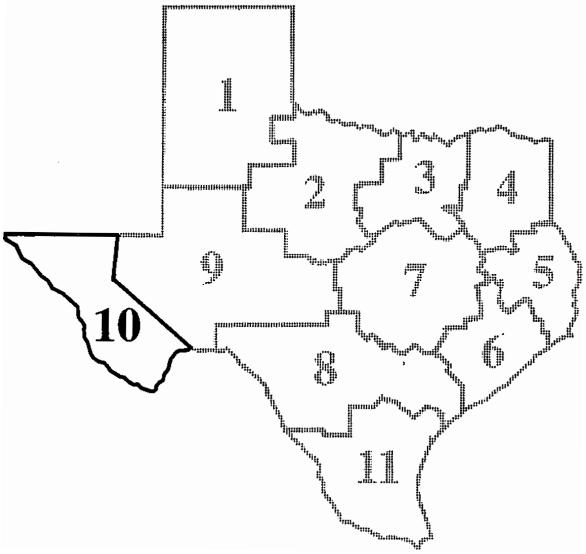
		CHLAMYDIA		GONORRHEA		P & S SYPHILIS	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE
ANDREWS	14,814	15	101.3	3	20.3	1	6.8
BORDEN	814	0	0.0	0	0.0	0	0.0
COKE	3,421	4	116.9	1	29.2	0	0.0
CONCHO	3,150	4	127.0	0	0.0	0	0.0
CRANE	4,866	6	123.3	0	0.0	0	0.0
CROCKETT	4,185	1	23.9	0	0.0	0	0.0
DAWSON	15,375	9	58.5	1	6.5	0	0.0
ECTOR	123,130	451	366.3	113	91.8	5	4.1
GAINES	14,507	25	172.3	3	20.7	0	0.0
GLASSCOCK	1,527	0	0.0	0	0.0	0	0.0
HOWARD	32,123	79	245.9	23	71.6	0	0.0
IRION	1,680	1	59.5	1	59.5	0	0.0
KIMBLE	4,113	3	72.9	0	0.0	0	0.0
LOVING	110	0	0.0	0	0.0	0	0.0
MCCULLOCH	8,775	11	125.4	1	11.4	0	0.0
MARTIN	5,170	7	135.4	1	19.3	0	0.0
MASON	3,358	5	148.9	0	0.0	0	0.0
MENARD	2,284	1	43.8	0	0.0	0	0.0
MIDLAND	115,529	232	200.8	133	115.1	7	6.1
PECOS	16,677	41	245.8	8	48.0	0	0.0
REAGAN	4,774	4	83.8	0	0.0	0	0.0
REEVES	16,577	16	96.5	1	6.0	3	18.1
SCHLEICHER	3,089	1	32.4	0	0.0	0	0.0
STERLING	1,485	2	134.7	0	0.0	0	0.0
SUTTON	4,290	2	46.6	0	0.0	0	0.0
TERRELL	1,458	1	68.6	0	0.0	0	0.0
TOM GREEN	103,922	319	307.0	86	82.8	2	1.9
UPTON	4,611	6	130.1	1	21.7	0	0.0
WARD	13,248	12	90.6	1	7.5	0	0.0
WINKLER	8,758	17	194.1	0	0.0	0	0.0
REGIONAL TOTALS	537,820	1,275	237	377	70.1	18	3.3
STATEWIDE TOTALS	18,286,827	46,046	251.8	29,757	162.7	1,913	10.5



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REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

COUNTY	1994 POP.	AMEBIASIS CASES	AMEBIASIS RATE	CAMPYLOBACTER CASES	CAMPYLOBACTER RATE	SALMONELLOSIS CASES	SALMONELLOSIS RATE	SHIGELLOSIS CASES	SHIGELLOSIS RATE
BREWSTER	9,787	0	0.0	0	0.0	0	0.0	0	0.0
CULBERSON	3,715	0	0.0	0	0.0	0	0.0	0	0.0
EL PASO	658,498	9	1.4	35	5.3	126	19.1	81	12.3
HUDSPETH	3,111	0	0.0	0	0.0	1	32.1	0	0.0
JEFF DAVIS	2,046	0	0.0	0	0.0	0	0.0	0	0.0
PRESIDIO	7,423	0	0.0	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	684,580	9	1.3	35	5.1	127	18.6	81	11.8
STATEWIDE TOTALS	182,868,272	110	0.1	997	0.5	1,983	1.1	2,410	1.3

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

COUNTY	1994 POP.	HEPATITIS A CASES	HEPATITIS A RATE	HEPATITIS B CASES	HEPATITIS B RATE	HEPATITIS C CASES	HEPATITIS C RATE	HEPATITIS UNSPECIFIED CASES	HEPATITIS UNSPECIFIED RATE
BREWSTER	9,787	1	10.2	0	0.0	0	0.0	0	0.0
CULBERSON	3,715	0	0.0	0	0.0	0	0.0	0	0.0
EL PASO	658,498	189	28.7	46	7.0	7	1.1	2	0.3
HUDSPETH	3,111	0	0.0	0	0.0	0	0.0	1	32.1
JEFF DAVIS	2,046	0	0.0	0	0.0	1	48.9	0	0.0
PRESIDIO	7,423	0	0.0	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	684,580	190	27.8	46	6.7	8	1.2	3	0.4
STATEWIDE TOTALS	18,286,827	2,877	15.7	1,422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED VACCINE PREVENTABLE DISEASES AND RATES PER 100,000 POPULATION

COUNTY	1994 POP.	MEASLES CASES	MEASLES RATE	MUMPS CASES	MUMPS RATE	PERTUSSIS CASES	PERTUSSIS RATE	RUBELLA CASES	RUBELLA RATE
BREWSTER	9,787	0	0.0	0	0.0	0	0.0	0	0.0
CULBERSON	3,715	0	0.0	0	0.0	0	0.0	0	0.0
EL PASO	658,498	0	0.0	18	2.7	6	0.9	1	0.2
HUDSPETH	3,111	0	0.0	1	32.1	0	0.0	0	0.0
JEFF DAVIS	2,046	0	0.0	0	0.0	0	0.0	0	0.0
PRESIDIO	7,423	0	0.0	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	684,580	0	0.0	19	2.8	6	0.9	1	0.1
STATEWIDE TOTALS	18,286,8272	17	0.1	234	1.3	160	0.9	9	0.0

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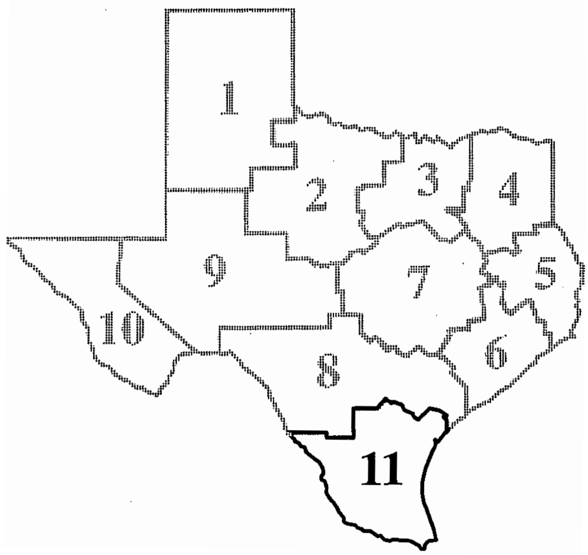
REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

COUNTY	1994 POP.	ASEPTIC MENINGITIS CASES	ASEPTIC MENINGITIS RATE	CHICKENPOX CASES	CHICKENPOX RATE	ENCEPHALITIS CASES	ENCEPHALITIS RATE	TUBERCULOSIS CASES	TUBERCULOSIS RATE
BREWSTER	9,787	0	0.0	7	71.5	0	0.0	1	10.2
CULBERSON	3,715	0	0.0	0	0.0	0	0.0	0	0.0
EL PASO	658,498	24	3.6	797	121.0	4	0.6	106	16.1
HUDSPETH	3,111	0	0.0	0	0.0	0	0.0	0	0.0
JEFF DAVIS	2,046	0	0.0	0	0.0	0	0.0	0	0.0
PRESIDIO	7,423	0	0.0	10	134.7	0	0.0	0	0.0
REGIONAL TOTALS	684,580	24	3.5	814	118.9	4	0.6	107	15.6
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100,000 POPULATION

COUNTY	1994 POP.	CHLAMYDIA CASES	CHLAMYDIA RATE	GONORRHEA CASES	GONORRHEA RATE	P & S SYPHILIS CASES	P & S SYPHILIS RATE
BREWSTER	9,787	45	459.8	4	40.9	0	0.0
CULBERSON	3,715	4	107.7	0	0.0	0	0.0
EL PASO	658,498	2,238	339.9	171	26.0	5	0.8
HUDSPETH	3.111	1	32.1	0	0.0	0	0.0
JEFF DAVIS	2,046	1	48.9	0	0.0	0	0.0
PRESIDIO	7,423	17	229.0	1	13.5	0	0.0
REGIONAL TOTALS	684,580	2,306	336.8	176	25.7	5	0.7
STATEWIDE TOTALS	18,286,827	46,046	251.8	29.757	162.7	1,913	10.5



PUBLIC HEALTH REGION 11

REPORTED CASES OF HEPATITIS AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 11 - 1994

COUNTY	1994 POP.	HEPATITIS A CASES	HEPATITIS A RATE	HEPATITIS B CASES	HEPATITIS B RATE	HEPATITIS C CASES	HEPATITIS C RATE	HEPATITIS UNSPECIFIED CASES	HEPATITIS UNSPECIFIED RATE
ARANSAS	18,702	1	5.3	0	0.0	0	0.0	0	0.0
BEE	31,689	1	3.2	1	3.2	0	0.0	0	0.0
BROOKS	8,543	0	0.0	0	0.0	0	0.0	0	0.0
CAMERON	287,619	82	28.5	6	21	1	0.3	4	1.4
DUVAL	13,422	0	0.0	0	0.0	0	0.0	0	0.0
HIDALGO	442,346	135	30.5	7	1.6	1	0.2	17	3.8
JIM HOGG	5,688	0	0.0	0	0.0	0	0.0	0	0.0
JIM WELLS	38,561	11	28.5	3	7.8	0	0.0	0	0.0
KENEDY	484	0	0.0	0	0.0	0	0.0	0	0.0
KLEBERG	32,377	1	3.1	4	12.4	0	0.0	0	0.0
LIVE OAK	9,753	0	0.0	0	0.0	0	0.0	0	0.0
MCMULLEN	845	0	0.0	0	0.0	0	0.0	0	0.0
NUECES	306,499	278	90.7	32	10.4	8	2.6	0	0.0
REFUGIO	8,096	0	0.0	0	0.0	0	0.0	0	0.0
SAN PATRICIO	62,573	14	22.4	7	11.2	0	0.0	0	0.0
STARR	48,717	21	43.1	1	21	0	0.0	2	4.1
WEBB	152,769	90	58.9	5	3.3	0	0.0	0	0.0
WILLACY	18,615	4	21.5	0	0.0	1	5.4	0	0.0
ZAPATA	10,677	0	0.0	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	1,499,969	638	42.5	66	4.4	11	0.7	23	1.5
STATEWIDE TOTALS	18,286,827	2,877	15.7	1,422	7.8	305	1.7	86	0.5

REPORTED CASES OF SELECTED GASTROINTESTINAL DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 11 - 1994

		AMEBIASIS		CAMPYLOBACTER		SALMONELLOSIS		SHIGELLOSIS	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
ARANSAS	18,702	0	0.0	2	10.7	4	21.4	0	0.0
BEE	31,689	0	0.0	0	0.0	2	6.3	2	6.3
BROOKS	8,543	0	0.0	1	11.7	1	11.7	2	23.4
CAMERON	287,619	10	3.5	3	1.0	21	7.3	35	12.2
DUVAL	13,422	0	0.0	0	0.0	1	7.5	2	14.9
HIDALGO	442,346	2	0.5	22	5.0	59	13.3	75	17.0
JIM HOGG	5,688	0	0.0	0	0.0	0	0.0	0	0.0
JIM WELLS	38,561	0	0.0	0	0.0	3	7.8	1	2.6
KENEDY	484	0	0.0	0	0.0	0	0.0	0	0.0
KLEBERG	32,377	0	0.0	5	15.4	9	27.8	6	18.5
LIVE OAK	9,753	0	0.0	0	0.0	1	10.3	0	0.0
MCMULLEN	845	0	0.0	0	0.0	0	0.0	0	0.0
NUECES	306,499	2	0.7	26	8.5	80	26.1	78	25.4
REFUGIO	8,096	0	0.0	0	0.0	3	37.1	0	0.0
SAN PATRICIO	62,573	0	0.0	4	6.4	14	22.4	15	24.0
STARR	48,717	0	0.0	0	0.0	0	0.0	1	2.1
WEBB	152,769	0	0.0	3	2.0	46	30.1	27	17.7
WILLACY	18,615	1	5.4	0	0.0	1	5.4	1	5.4
ZAPATA	10,677	0	0.0	2	18.7	2	18.7	4	37.5
REGIONAL TOTALS	1,497,975	15	1.0	68	4.5	247	16.5	249	16.6
STATEWIDE TOTALS	18,286,827	110	0.6	997	5.5	1,983	10.8	2,410	13.2

REPORTED CASES OF OTHER SELECTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 11 - 1994

		ASEPTIC MENINGITIS		CHICKENPOX		ENCEPHALITIS		TUBERCULOSIS	
COUNTY	1994 POP.	CASES	RATE	CASES	RATE	CASES	RATE	CASES	RATE
ARANSAS	18,702	0	0.0	0	0.0	0	0.0	2	10.7
BEE	31,689	0	0.0	49	154.6	0	0.0	4	12.6
BROOKS	8,543	0	0.0	0	0.0	0	0.0	5	58.5
CAMERON	287,619	1	0.3	853	296.6	2	0.7	91	31.6
DUVAL	13,422	0	0.0	0	0.0	0	0.0	2	14.9
HIDALGO	442,346	4	0.9	277	62.6	0	0.0	111	25.1
JIM HOGG	5,688	0	0.0	0	0.0	0	0.0	0	0.0
JIM WELLS	38,561	0	0.0	6	15.6	0	0.0	5	13.0
KENEDY	484	0	0.0	0	0.0	0	0.0	0	0.0
KLEBERG	32,377	0	0.0	23	71.0	0	0.0	1	3.1
LIVE OAK	9,753	0	0.0	0	0.0	0	0.0	0	0.0
MCMULLEN	845	0	0.0	0	0.0	0	0.0	0	0.0
NUECES	306,499	0	0.0	840	274.1	0	0.0	42	13.7
REFUGIO	8,096	0	0.0	0	0.0	0	0.0	0	0.0
SAN PATRICIO	62,573	0	0.0	30	47.9	0	0.0	1	1.6
STARR	48,717	0	0.0	0	0.0	0	0.0	8	16.4
WEBB	152,769	0	0.0	25	16.4	0	0.0	56	36.7
WILLACY	18,615	0	0.0	44	236.4	0	0.0	9	48.3
ZAPATA	10,677	0	0.0	0	0.0	0	0.0	1	9.4
REGIONAL TOTALS	1,499,969	5	0.3	2,147	143.1	2	0.1	338	22.5
STATEWIDE TOTALS	18,286,827	970	5.3	16,159	88.4	54	0.3	2,542	13.9

REPORTED CASES OF SELECTED VACCINE PREVENTABLE DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 11 - 1994

COUNTY	1994 POP.	MEASLES CASES	MEASLES RATE	MUMPS CASES	MUMPS RATE	PERTUSSIS CASES	PERTUSSIS RATE	RUBELLA CASES	RUBELLA RATE
ARANSAS	18,702	0	0.0	0	0.0	4	21.4	0	0.0
BEE	31,689	0	0.0	0	0.0	0	0.0	0	0.0
BROOKS	8,543	0	0.0	0	0.0	0	0.0	0	0.0
CAMERON	287,619	0	0.0	11	3.8	3	1.0	1	0.3
DUVAL	13,422	0	0.0	0	0.0	2	14.9	0	0.0
HIDALGO	442,346	0	0.0	0	0.0	4	0.9	2	0.5
JIM HOGG	5,688	0	0.0	0	0.0	0	0.0	0	0.0
JIM WELLS	38,561	0	0.0	0	0.0	0	0.0	0	0.0
KENEDY	484	0	0.0	0	0.0	0	0.0	0	0.0
KLEBERG	32,377	0	0.0	0	0.0	0	0.0	0	0.0
LIVE OAK	9,753	0	0.0	0	0.0	0	0.0	0	0.0
MCMULLEN	845	0	0.0	0	0.0	0	0.0	0	0.0
NUECES	306,499	0	0.0	1	0.3	2	0.7	0	0.0
REFUGIO	8,096	0	0.0	0	0.0	0	0.0	0	0.0
SAN PATRICIO	62,573	0	0.0	0	0.0	0	0.0	0	0.0
STARR	48,717	0	0.0	0	0.0	0	0.0	0	0.0
WEBB	152,769	0	0.0	2	1.3	0	0.0	0	0.0
WILLACY	18,615	0	0.0	1	5.4	2	10.7	0	0.0
ZAPATA	10,677	0	0.0	0	0.0	0	0.0	0	0.0
REGIONAL TOTALS	1,499,969	0	0.0	15	1.0	17	1.1	3	0.2
STATEWIDE TOTALS	18,286,827	17	0.1	234	1.3	160	0.9	9	0.0

REPORTED CASES OF SELECTED SEXUALLY TRANSMITTED DISEASES AND RATES PER 100,000 POPULATION

PUBLIC HEALTH REGION 11 - 1994

COUNTY	1994 POP.	CHLAMYDIA CASES	CHLAMYDIA RATE	GONORRHEA CASES	GONORRHEA RATE	P & S SYPHILIS CASES	P & S SYPHILIS RATE
ARANSAS	18,702	37	197.8	2	10.7	2	10.7
BEE	31,689	67	211.4	6	18.9	0	0.0
BROOKS	8,543	30	351.2	4	46.8	0	0.0
CAMERON	287,619	761	264.6	43	15.0	2	0.7
DUVAL	13,422	19	141.6	0	0.0	0	0.0
HIDALGO	442,346	993	224.5	66	14.9	17	3.8
JIM HOGG	5,688	0	0.0	0	0.0	0	0.0
JIM WELLS	38,561	61	158.2	2	5.2	2	5.2
KENEDY	484	0	0.0	0	0.0	0	0.0
KLEBERG	32,377	38	117.4	12	37.1	1	3.1
LIVE OAK	9,753	4	41.0	1	10.3	0	0.0
MCMULLEN	845	0	0.0	0	0.0	0	0.0
NUECES	306,499	567	185.0	344	112.2	20	6.5
REFUGIO	8,096	7	86.5	1	12.4	0	0.0
SAN PATRICIO	62,573	81	129.4	20	32.0	1	1.6
STARR	48,717	43	88.3	3	6.2	1	2.1
WEBB	152,769	111	72.7	11	7.2	9	5.9
WILLACY	18,615	29	155.8	3	16.1	0	0.0
ZAPATA	10,677	6	56.2	3	28.1	0	0.0
REGIONAL TOTALS	1,497,975	2,854	190.5	521	34.8	55	3.7
STATEWIDE TOTALS	18,286,827	46,046	251.8	29,757	162.7	1,913	10.5

REPORTED CASES OF SELECTED DISEASES

TABLE I

REPORTED CASES OF SELECTED DISEASES

TEXAS, 1985 - 1994

DISEASE	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985
AMEBIASIS	110	86	108	86	139	159	252	290	394	279
BOTULISM	27	2	1	4	7	4	4	4	5	4
BRUCELLOSIS	29	34	27	36	18	23	22	51	18	47
CAMPYLOBACTERIOSIS	997	849	996	810	739	625	745	780	803	666
CHICKENPOX	16,159	14,291	20,554	19,409	26,636	23,722	20,085	23,228	23,221	20,758
CHLAMYDIA	46,046	43,874	39,725	31,199	20,575	-	-	-	-	-
CHOLERA	4	2	5	3	0	0	1	0	0	0
DENGUE	1	2	0	2	0	2	0	0	17	1
ENCEPHALITIS	54	61	89	121	74	60	74	118	191	144
ESCHERICHIA COLI O157:H7	72	-	-	-	-	-	-	-	-	-
GONORRHEA	29,757	30,122	35,517	43,282	43,231	45,786	45,639	51,688	63,376	66,728
HAEMOPHILUS INFLUENZAE INF.	20	51	42	152	625	797	843	747	647	554
HANSEN'S DISEASE	31	31	52	38	37	25	35	31	29	28
HANTAVIRUS INFECTIONS	1	-	-	-	-	-	-	-	-	-
HEMOLYTIC UREMIC SYNDROME	11	-	-	-	-	-	-	-	-	-
HEPATITIS A	2,877	2,798	1,828	2,663	2,722	3,211	2,739	1,886	2,137	2,565
HEPATITIS B	1,422	1,354	1,528	1,958	1,789	1,853	1,654	1,487	1,500	1,513
HEPATITIS C *	305	384	255	-	-	-	-	-	-	-
HEPATITIS D *	4	1	5	-	-	-	-	-	-	-
HEPATITIS NANB	9	28	26	144	130	236	149	161	205	178
HEPATITIS UNSPECIFIED	86	157	191	260	287	530	576	599	854	1,290
LEGIONELLOSIS	15	22	24	23	25	50	20	38	41	29
LISTERIOSIS	64	28	26	52	32	40	45	42	28	-
LYME DISEASE	56	48	113	57	44	82	25	33	9	-
MALARIA	93	48	45	75	80	79	73	56	84	93
MEASLES	17	10	1,097	294	4,409	3,313	286	452	398	450
MENINGITIS, ASEPTIC	970	1,329	1,242	1,275	811	836	675	758	1,383	989
MENINGITIS, BACTERIAL/OTHER	360	262	380	337	345	371	385	354	533	423
MENINGOCOCCAL INFECTIONS	237	157	111	100	93	93	98	126	138	132
MUMPS	234	231	388	363	470	551	327	338	239	321
PERTUSSIS	160	121	161	143	158	366	158	111	112	379
RABIES, HUMAN	1	1	0	1	1	0	0	0	0	0
RELAPSING FEVER	3	0	0	0	0	0	0	0	1	0
RMSF	7	7	1	2	6	19	22	22	21	33
RUBELLA	9	22	10	16	99	64	30	5	78	52
SALMONELLOSIS	1,983	1,924	1,933	2,317	2,315	2,277	2,334	2,803	2,445	2,442
SHIGELLOSIS	2,410	4,581	3,568	2,178	3,550	1,654	2,826	2,087	2,454	1,718
STREPTOCOCCAL DISEASE, GP A	82	-	-	-	-	-	-	-	-	-
SYPHILIS, PRIMARY & SECONDARY	1,913	2,530	3,316	4,970	5,165	4,267	3,124	3,071	3,967	4,610
TETANUS	12	7	5	10	7	5	6	5	12	9
TUBERCULOSIS	2,542	2,393	2,510	2,525	2,242	1,915	1,901	1,757	1,890	1,891
TYPHOID FEVER	10	15	23	31	28	20	3	36	28	32
TYPHUS, MURINE	9	12	18	22	36	30	30	34	52	25
VIBRIO INFECTIONS	31	17	15	25	25	17	27	20	-	-

*Prior to 1992, hepatitis C and D cases were counted as hepatitis non A-non B.

TABLE II

RATES OF SELECTED DISEASES PER 100,000 POPULATION

TEXAS, 1985 - 1994

DISEASE	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985
AMEBIASIS	0.6	0.5	0.6	0.5	0.8	0.9	1.5	1.7	2.4	1.7
BOTULISM	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BRUCELLOSIS	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.1	0.3
CAMPYLOBACTERIOSIS	5.5	4.8	5.7	4.7	4.4	3.6	4.3	4.6	4.8	4.1
CHICKENPOX	88.4	81.3	116.7	112.5	156.8	135.8	116.3	162.3	138.6	128.7
CHLAMYDIA	251.8	244.0	225.3	180.3	121.1	-	-	-	-	-
CHOLERA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DENGUE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
ENCEPHALITIS	0.3	0.3	0.5	0.7	0.4	0.3	0.4	0.7	1.1	0.9
ESCHERICHIA COLI O157:H7	0.4	-	-	-	-	-	-	-	-	-
GONORRHEA	162.7	171.3	201.6	250.8	254.5	262.1	264.3	303.6	378.3	413.7
HAEMOPHILUS INFLUENZAE INF.	0.1	0.3	0.2	0.9	3.7	4.6	4.9	4.4	3.9	3.4
HANSEN'S DISEASE	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2
HANTAVIRUS INFECTIONS	0.0	-	-	-	-	-	-	-	-	-
HEMOLYTIC UREMIC SYNDROME	0.1	-	-	-	-	-	-	-	-	-
HEPATITIS A	15.7	15.9	10.4	15.4	16.0	18.4	15.9	11.1	12.8	15.9
HEPATITIS B	7.8	7.7	8.7	11.3	10.5	10.6	9.6	8.7	9.0	9.4
HEPATITIS C *	1.7	2.2	1.5	-	-	-	-	-	-	-
HEPATITIS D *	0.0	0.0	0.0	-	-	-	-	-	-	-
HEPATITIS NANB	0.0	0.1	0.1	0.8	0.8	1.4	0.9	1.0	1.2	1.1
HEPATITIS UNSPECIFIED	0.5	0.9	1.1	1.5	1.7	3.0	3.3	3.5	5.1	8.0
LEGIONELLOSIS	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.2	0.2
LISTERIOSIS	0.4	0.2	0.1	0.3	0.2	0.2	0.3	0.3	0.2	-
LYME DISEASE	0.3	0.3	0.6	0.3	0.3	0.5	0.1	0.2	0.1	-
MALARIA	0.5	0.3	0.3	0.4	-	-	-	-	-	-
MEASLES	0.1	0.1	6.2	1.7	26.0	19.0	1.7	2.7	2.4	2.8
MENINGITIS, ASEPTIC	5.3	7.6	7.1	7.4	4.8	4.8	3.9	4.5	8.3	6.1
MENINGITIS, BACTERIAL/OTHER	2.0	1.5	2.2	2.0	2.0	2.1	2.2	2.1	3.2	2.6
MENINGOCOCCAL INFECTIONS	1.3	0.9	0.6	0.6	0.5	0.5	0.6	0.7	0.8	0.8
MUMPS	1.3	1.3	2.2	2.1	2.8	3.2	1.9	2.0	1.4	2.0
PERTUSSIS	0.9	0.7	0.9	0.8	0.9	2.1	0.9	0.7	0.7	2.4
RABIES, HUMAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RELAPSING FEVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RMSF	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2
RUBELLA	0.0	0.1	0.1	0.1	0.6	0.4	0.2	0.0	0.5	0.3
SALMONELLOSIS	10.8	10.9	11.0	13.4	13.6	13.0	13.5	16.5	14.6	15.1
SHIGELLOSIS	13.2	26.0	20.3	12.6	20.9	9.5	16.4	12.3	14.7	10.7
STREPTOCOCCAL DISEASE, GP A	0.5	-	-	-	-	-	-	-	-	-
SYPHILIS, PRIMARY & SECONDARY	10.5	14.1	18.8	28.8	30.4	24.4	18.1	18.0	23.7	28.6
TETANUS	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.2
TUBERCULOSIS	13.9	13.3	14.2	14.6	13.2	11.0	11.0	10.3	11.3	11.7
TYPHOID FEVER	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2
TYPHUS, MURINE	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2
VIBRIO INFECTIONS	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	-	-

* Prior to *1992*, hepatitis C and D cases were counted as hepatitis non A-non B.
Case rates are based on the *1994* population estimate *(18,286,827)* from State Health Data, Texas A&M university.

TABLE III

REPORTED CASES OF SELECTED DISEASES BY MONTH OF ONSET

TEXAS, 1994

DISEASE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
AMEBIASIS	7	13	15	16	8	9	3	10	7	8	10	4
BOTULISM	1	0	0	24	0	0	1	1	0	0	0	0
BRUCELLOSIS	0	2	1	3	3	4	5	5	3	0	1	2
CAMPYLOBACTERIOSIS	47	45	64	78	97	145	135	104	80	86	66	50
CHICKENPOX ¤	226	1,287	1,947	2,782	2,183	2,954	540	166	371	299	856	2,548
CHLAMYDIA ¤	3,616	3,094	4,564	3,724	4,482	3,630	3,839	4,089	3,656	3,821	3,359	4,172
CHOLERA	0	3	0	0	0	0	1	0	0	0	0	0
DENGUE	0	0	0	0	0	0	0	0	0	0	0	1
ENCEPHALITIS	4	3	3	6	2	6	12	1	1	6	3	7
ESCHERICHIA COLI O157:H7	0	1	0	2	4	6	4	20	18	9	7	1
GONORRHEA ¤	2,380	1,528	2,820	2,115	2,505	2,632	2,750	2,951	2,744	2,704	2,328	2,300
HAEMOPHILUS INFLUENZAE INF.	6	3	3	3	2	0	0	0	1	0	0	2
HANSEN'S DISEASE	2	3	4	2	5	3	2	0	1	2	6	1
HANTAVIRUS INFECTIONS	0	0	1	0	0	0	0	0	0	0	0	0
HEMOLYTIC UREMIC SYNDROME	0	0	0	0	1	0	2	2	1	1	3	1
HEPATITIS A	313	287	278	267	269	214	187	249	240	217	174	182
HEPATITIS B	139	93	102	109	145	138	130	132	124	118	106	86
HEPATITIS C	14	20	28	27	28	20	27	34	15	28	34	30
HEPATITIS D	0	1	0	0	0	1	0	0	1	1	0	0
HEPATITIS NANB	1	1	0	1	1	1	1	0	2	0	1	0
HEPATITIS UNSPECIFIED	14	11	3	15	2	9	5	6	4	4	5	8
LEGIONELLOSIS	0	2	0	2	2	3	1	2	1	0	1	1
LISTERIOSIS	6	4	2	2	8	6	8	6	8	8	1	5
LYME DISEASE	9	4	5	8	9	6	3	5	3	1	1	2
MALARIA	5	2	5	5	7	14	15	11	8	7	10	4
MEASLES	1	4	6	3	0	0	0	1	1	1	0	0
MENINGITIS, ASEPTIC	39	52	62	88	124	136	110	83	78	84	67	47
MENINGITIS, BACTERIAL/OTHER	36	42	36	30	42	27	26	27	29	15	27	23
MENINGOCOCCAL INFECTIONS	36	29	26	17	12	15	14	10	20	16	22	20
MUMPS	24	27	30	33	26	14	4	13	18	8	27	10
PERTUSSIS	7	9	10	10	23	25	24	13	16	9	7	7
RABIES, HUMAN	0	0	0	0	0	0	0	0	0	0	1	0
RELAPSING FEVER	0	1	0	0	0	2	0	0	0	0	0	0
RMSF	0	0	0	3	0	1	1	2	0	0	0	0
RUBELLA	0	0	3	5	0	1	0	0	0	0	0	0
SALMONELLOSIS	109	69	109	134	134	199	196	237	257	313	126	100
SHIGELLOSIS	168	161	182	187	172	223	280	261	239	237	171	129
STREPTOCOCCAL DISEASE, GP A	1	5	6	7	12	14	7	5	4	4	6	11
SYPHILIS, PRIMARY & SECONDARY ¤	161	123	198	126	115	191	159	154	211	154	135	186
TETANUS	1	1	1	1	1	1	2	1	0	2	0	1
TUBERCULOSIS ¤	52	143	162	245	181	233	253	206	209	204	181	473
TYPHOID FEVER	2	0	1	2	1	1	2	0	1	0	0	0
TYPHUS, MURINE	0	1	0	0	0	1	2	0	0	2	2	1
VIBRIO INFECTIONS	0	2	1	2	3	1	4	7	6	1	2	2

¤ Totals are by month of report rather than month of onset.

TABLE IV

REPORTED CASES OF SELECTED DISEASES BY AGE GROUP

TEXAS, 1994

DISEASE	<1	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60 +	UNK
AMEBIASIS	3	13	8	7	3	23	21	16	6	8	2
BOTULISM	3	0	0	1	2	10	2	5	4	0	0
BRUCELLOSIS	0	1	0	3	2	9	9	2	1	2	0
CAMPYLOBACTERIOSIS	69	136	86	47	52	184	154	89	50	104	26
CHLAMYDIA	51	35	16	1,251	18,290	21,255	3,493	544	95	78	938
CHOLERA	0	0	0	0	0	1	0	0	1	2	0
DENGUE	0	0	0	0	0	1	0	0	0	0	0
ENCEPHALITIS	3	4	2	3	5	4	13	3	8	8	1
ESCHERICHIA COLI O157:H7	1	12	4	4	24	11	3	4	2	7	0
GONORRHEA	8	30	23	658	9,556	13,450	4,169	1,068	233	102	460
HAEMOPHILUS INFLUENZAE INF.	4	3	0	1	2	2	0	0	2	6	0
HANSEN'S DISEASE	0	0	0	0	1	3	5	3	6	13	0
HANTAVIRUS INFECTIONS	0	0	0	0	0	1	0	0	0	0	0
HEMOLYTIC UREMIC SYNDROME	0	5	3	2	0	0	0	1	0	0	0
HEPATITIS A	23	274	741	368	222	490	367	184	61	85	62
HEPATITIS B	2	13	6	17	89	424	430	210	80	105	46
HEPATITIS C	1	1	0	1	8	69	130	61	22	10	2
HEPATITIS D	0	0	1	0	1	1	0	1	0	0	0
HEPATITIS NANB	0	0	0	2	0	2	2	3	0	0	0
HEPATITIS UNSPECIFIED	3	5	14	5	6	13	21	5	2	10	2
LEGIONELLOSIS	0	0	0	0	0	0	3	4	1	7	0
LISTERIOSIS	11	0	0	0	2	6	4	4	10	24	3
LYME DISEASE	0	0	3	7	1	5	15	12	7	6	0
MALARIA	1	0	5	5	3	19	24	17	8	5	6
MEASLES	2	7	0	3	0	2	2	1	0	0	0
MENINGITIS, ASEPTIC	244	114	94	69	53	153	123	53	30	26	11
MENINGITIS, BACTERIAL/OTHER	96	29	9	13	10	25	53	31	25	68	1
MENINGOCOCCAL INFECTIONS	35	48	33	15	19	29	14	14	10	19	1
MUMPS	4	33	92	48	15	14	18	3	4	3	0
PERTUSSIS	106	25	6	6	0	5	6	2	2	2	0
RABIES, HUMAN	0	0	0	1	0	0	0	0	0	0	0
RELAPSING FEVER	0	0	0	0	0	1	0	2	0	0	0
RMSF	0	2	2	0	1	0	1	0	0	1	0
RUBELLA	0	2	2	0	2	0	2	1	0	0	0
SALMONELLOSIS	416	388	176	97	77	153	180	98	90	215	93
SHIGELLOSIS	67	791	653	159	56	235	195	86	48	71	49
STREPTOCOCCAL DISEASE, GP A	4	6	5	1	3	6	10	16	10	21	0
SYPHILIS, PRIMARY & SECONDARY	0	0	1	13	273	789	535	216	55	30	1
TETANUS	0	0	0	1	0	1	0	0	3	7	0
TYPHOID FEVER	0	1	1	0	1	4	1	0	1	1	0
TYPHUS, MURINE	0	0	2	0	0	3	1	2	0	1	0
VIBRIO INFECTIONS	0	0	0	2	0	1	4	6	3	15	0
TUBERCULOSIS AGE GROUPS--->	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65 +	UNK
TUBERCULOSIS	147	51	35	72	156	504	529	360	284	404	0

TABLE V

RATES OF SELECTED DISEASES PER 100,000 POPULATION BY AGE GROUP

TEXAS, 1994

DISEASE	< 1	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60 +
AMEBIASIS	0.9	1.1	0.6	0.5	0.2	0.8	0.7	0.7	0.4	0.3
BOTULISM	0.9	0.0	0.0	0.1	0.2	0.3	0.1	0.2	0.3	0.0
BRUCELLOSIS	0.0	0.1	0.0	0.2	0.2	0.3	0.3	0.1	0.1	0.1
CAMPYLOBACTERIOSIS	21.7	11.0	6.1	3.3	3.9	6.4	4.8	3.6	3.2	4.2
CHLAMYDIA	16.0	2.8	1.1	86.7	1,381.1	743.3	109.4	22.1	6.1	3.1
CHOLERA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
DENGUE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENCEPHALITIS	0.9	0.3	0.1	0.2	0.4	0.1	0.4	0.1	0.5	0.3
ESCHERICHIA COLI O157:H7	0.3	1.0	0.3	0.3	1.8	0.4	0.1	0.2	0.1	0.3
GONORRHEA	2.5	2.4	1.6	45.6	721.6	470.3	130.6	43.4	15.0	4.1
HAEMOPHILUS INFLUENZAE INF.	1.3	0.2	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.2
HANSEN'S DISEASE	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.4	0.5
HANTAVIRUS INFECTIONS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEMOLYTIC UREMIC SYNDROME	0.0	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
HEPATITIS A	7.2	22.2	52.3	25.5	16.8	17.1	11.5	7.5	3.9	3.4
HEPATITIS B	0.6	1.1	0.4	1.2	6.7	14.8	13.5	8.5	5.2	4.2
HEPATITIS C	0.3	0.1	0.0	0.1	0.6	2.4	4.1	2.5	1.4	0.4
HEPATITIS D	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
HEPATITIS NANB	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0
HEPATITIS UNSPECIFIED	0.9	0.4	1.0	0.3	0.5	0.5	0.7	0.2	0.1	0.4
LEGIONELLOSIS	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.3
LISTERIOSIS	3.5	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.6	1.0
LYME DISEASE	0.0	0.0	0.2	0.5	0.1	0.2	0.5	0.5	0.5	0.2
MALARIA	0.3	0.0	0.4	0.3	0.2	0.7	0.8	0.6	0.5	0.2
MEASLES	0.6	0.6	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.0
MENINGITIS, ASEPTIC	76.8	9.2	6.6	4.8	4.0	5.3	3.9	2.2	1.9	1.0
MENINGITIS, BACTERIAL/OTHER	30.2	2.3	0.6	0.9	0.8	0.9	1.7	1.3	1.6	2.7
MENINGOCOCCAL INFECTIONS	11.0	3.9	2.3	1.0	1.4	1.0	0.4	0.6	0.6	0.8
MUMPS	1.3	2.7	6.5	3.3	1.1	0.5	0.6	0.1	0.3	0.1
PERTUSSIS	33.4	2.0	0.4	0.4	0.0	0.2	0.2	0.1	0.1	0.1
RABIES, HUMAN	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
RELAPSING FEVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
RMSF	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
RUBELLA	0.0	0.2	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.0
SALMONELLOSIS	130.9	31.4	12.4	6.7	5.8	5.3	5.6	4.0	5.8	8.7
SHIGELLOSIS	21.1	64.1	46.1	11.0	4.2	8.2	6.1	3.5	3.1	2.9
STREPTOCOCCAL DISEASE, GP A	1.3	0.5	0.4	0.1	0.2	0.2	0.3	0.6	0.6	0.8
SYPHILIS, PRIMARY & SECONDARY	0.0	0.0	0.1	0.9	20.6	27.6	16.8	8.8	3.5	1.2
TETANUS	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.3
TYPHOID FEVER	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0
TYPHUS, MURINE	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0
VIBRIO INFECTIONS	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.6
TUBERCULOSIS AGE GROUPS--->	0-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65 +
TUBERCULOSIS	9.5	3.6	2.4	5.4	11.0	16.4	18.2	18.2	21.4	20.7

Case rates are based on the 1994 population estimate (18,286,827) from State Health Data, Texas A&M University.

TABLE VI

REPORTED CASES OF SELECTED DISEASES BY PUBLIC HEALTH REGIONS

TEXAS, 1994

DISEASE	1994 Total	PHR 1	PHR 2	PHR 3	PHR 4	PHR 5	PHR 6	PHR 7	PHR 8	PHR 9	PHR 10	PHR 11
AMEBIASIS	110	2	9	25	0	0	8	24	17	1	9	15
BOTULISM	27	0	0	0	0	0	0	2	1	0	24	0
BRUCELLOSIS	29	0	0	6	1	0	8	3	2	0	1	8
CAMPYLOBACTERIOSIS	997	94	20	184	21	31	198	135	178	33	35	68
CHICKENPOX	16,159	317	395	1,971	337	538	5,877	2,118	1,169	476	814	2,147
CHLAMYDIA	46,046	2,655	1,146	8,256	1,543	1,345	11,777	7,057	5,832	1,275	2,306	2,854
CHOLERA	4	0	0	0	0	0	3	0	0	0	0	1
DENGUE	1	0	1	0	0	0	0	0	0	0	0	0
ENCEPHALITIS	54	3	2	2	8	3	14	10	5	1	4	2
ESCHERICHIA COLI O157:H7	72	3	8	21	3	1	1	32	2	0	0	1
GONORRHEA	29,757	1,195	571	9,781	1,229	1,208	8,662	3,895	2,142	377	176	521
HAEMOPHILUS INFLUENZAE INF.	20	2	0	2	3	0	5	3	1	1	3	0
HANSEN'S DISEASE	31	0	1	7	4	3	4	0	9	0	0	3
HANTAVIRUS INFECTIONS	1	0	0	0	0	0	0	0	0	0	0	1
HEMOLYTIC UREMIC SYNDROME	11	2	1	4	0	0	2	2	0	0	0	0
HEPATITIS A	2,877	93	67	575	55	20	541	225	420	53	190	638
HEPATITIS B	1,422	72	46	633	44	45	252	82	105	31	46	66
HEPATITIS C	305	17	24	86	9	16	40	43	23	28	8	11
HEPATITIS D	4	0	0	1	0	0	2	0	1	0	0	0
HEPATITIS NANB	9	2	1	3	1	0	2	0	0	0	0	0
HEPATITIS UNSPECIFIED	86	1	3	13	7	3	12	10	9	2	3	23
LEGIONELLOSIS	15	1	1	1	0	0	6	3	0	0	1	2
LISTERIOSIS	64	3	0	12	0	4	13	9	10	0	2	11
LYME DISEASE	56	0	7	24	5	3	7	7	0	1	0	2
MALARIA	93	2	0	23	4	2	40	14	1	2	5	0
MEASLES	17	1	1	10	0	0	3	1	1	0	0	0
MENINGITIS, ASEPTIC	970	42	9	355	84	9	187	78	141	36	24	5
MENINGITIS, BACTERIAL/OTHER	360	9	15	106	25	9	76	65	25	6	8	16
MENINGOCOCCAL INFECTIONS	237	10	3	82	37	9	37	36	7	2	6	8
MUMPS	234	39	13	41	8	7	46	10	27	9	19	15
PERTUSSIS	160	12	4	34	5	0	12	25	22	23	6	17
RABIES, HUMAN	1	0	0	0	0	0	0	0	0	0	0	1
RELAPSING FEVER	3	0	0	0	0	0	0	3	0	0	0	0
RMSF	7	0	2	1	3	1	0	0	0	0	0	0
RUBELLA	9	0	0	0	0	0	0	2	1	2	1	3
SALMONELLOSIS	1,983	162	80	346	91	51	206	309	277	87	127	247
SHIGELLOSIS	2,410	198	105	481	66	24	254	363	467	122	81	249
STREPTOCOCCAL DISEASE, GP A	82	2	3	27	2	2	19	16	7	2	0	2
SYPHILIS, PRIMARY & SECONDARY	1,913	17	30	518	143	261	569	210	87	18	5	55
TETANUS	12	0	2	0	0	0	4	1	2	0	0	3
TUBERCULOSIS	2,481	44	35	542	80	68	860	163	207	37	107	338
TYPHOID FEVER	10	0	0	4	1	0	2	0	1	0	1	1
TYPHUS, MURINE	9	0	1	0	0	0	0	0	0	0	0	8
VIBRIO INFECTIONS	31	0	0	4	1	1	13	5	2	0	0	5

TB totals from Region 6 do not include cases from the Texas Department of Corrections (cases=61, rate 61.9/100,000). These cases are included in the statewide totals.

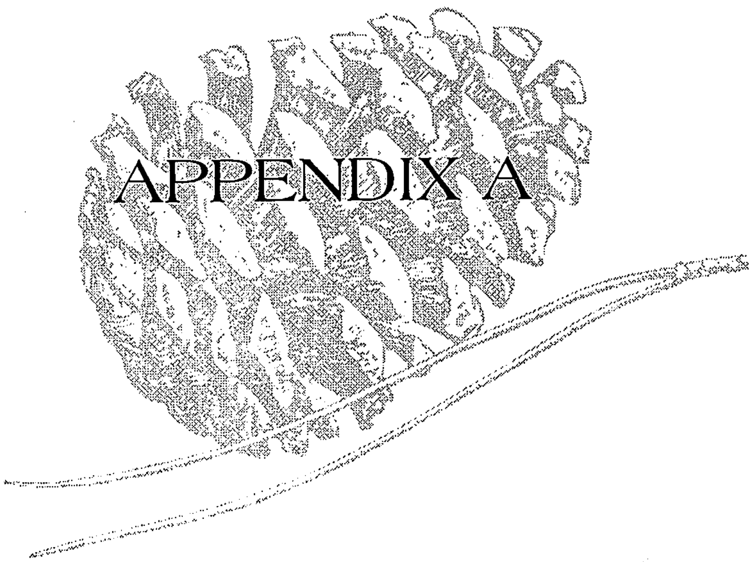
TABLE VII

RATES OF SELECTED DISEASES PER 100,000 POPULATION BY PUBLIC HEALTH REGIONS

TEXAS, 1994

DISEASE	1994 Total	PHR 1	PHR 2	PHR 3	PHR 4	PHR 5	PHR 6	PHR 7	PHR 8	PHR 9	PHR 10	PHR 11
AMEBIASIS	0.6	0.3	1.7	0.5	0.0	0.0	0.2	1.3	0.9	0.2	1.3	1.0
BOTULISM	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	3.5	0.0
BRUCELLOSIS	0.2	0.0	0.0	0.1	0.1	0.0	0.2	0.2	0.1	0.0	0.1	0.5
CAMPYLOBACTERIOSIS	5.5	12.5	3.8	3.9	2.3	4.6	4.7	7.3	9.3	6.1	5.1	4.5
CHICKENPOX	88.4	42.2	74.5	41.7	36.2	79.1	140.5	114.8	60.9	88.5	118.9	143.1
CHLAMYDIA	251.8	353.1	216.0	174.8	165.7	197.8	281.5	382.7	303.8	237.1	336.8	190.3
CHOLERA	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
DENGUE	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENCEPHALITIS	0.3	0.4	0.4	0.0	0.9	0.4	0.3	0.5	0.3	0.2	0.6	0.1
ESCHERICHIA COLI O157:H7	0.4	0.4	1.5	0.4	0.3	0.1	0.0	1.7	0.1	0.0	0.0	0.1
GONORRHEA	162.7	158.9	107.6	207.0	132.0	177.6	207.0	211.2	111.6	70.1	25.7	34.7
HAEMOPHILUS INFLUENZAE INF.	0.1	0.3	0.0	0.0	0.3	0.0	0.1	0.2	0.1	0.2	0.4	0.0
HANSEN'S DISEASE	0.2	0.0	0.2	0.1	0.4	0.4	0.1	0.0	0.5	0.0	0.0	0.2
HANTAVIRUS INFECTIONS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
HEMOLYTIC UREMIC SYNDROME	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
HEPATITIS A	15.7	12.4	12.6	12.2	5.9	2.9	12.9	12.2	21.9	9.9	27.8	42.5
HEPATITIS B	7.8	9.6	8.7	13.4	4.7	6.6	6.0	4.4	5.5	5.8	6.7	4.4
HEPATITIS C	1.7	2.3	4.5	1.8	1.0	2.4	1.0	2.3	1.2	5.2	1.2	0.7
HEPATITIS D	0.0	0. 0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
HEPATITIS NANB	0.0	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEPATITIS UNSPECIFIED	0.5	0.1	0.6	0.3	0.8	0.4	0.3	0.5	0.5	0.4	0.4	1.5
LEGIONELLOSIS	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.1
LISTERIOSIS	0.4	0.4	0.0	0.3	0.0	0.6	0.3	0.5	0.5	0.0	0.3	0.7
LYME DISEASE	0.3	0.0	1.3	0.5	0.5	0.4	0.2	0.4	0.0	0.2	0.0	0.1
MALARIA	0.5	0.3	0.0	0.5	0.4	0.3	1.0	0.8	0.1	0.4	0.7	0.0
MEASLES	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
MENINGITIS, ASEPTIC	5.3	5.6	1.7	7.5	9.0	1.3	4.5	4.2	7.3	6.7	3.5	0.3
MENINGITIS, BACTERIAL/OTHER	2.0	1.2	2.8	2.2	2.7	1.3	1.8	3.5	1.3	1.1	1.2	1.1
MENINGOCOCCAL INFECTIONS	1.3	1.3	0.6	1.7	4.0	1.3	0.9	2.0	0.4	0.4	0.9	0.5
MUMPS	1.3	5.2	2.5	0.9	0.9	1.0	1.1	0.1	1.4	1.7	2.8	1.0
PERTUSSIS	0.9	1.6	0.8	0.7	0.5	0.0	0.3	1.4	1.1	4.3	0.9	1.1
RABIES, HUMAN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
RELAPSING FEVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
RMSF	0.0	0.0	0.4	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
RUBELLA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.1	0.2
SALMONELLOSIS	10.8	21.5	15.1	7.3	9.8	7.5	4.9	16.8	14.4	16.2	18.6	16.5
SHIGELLOSIS	13.2	26.3	19.8	10.2	7.1	3.5	6.1	19.7	24.3	22.7	11.8	16.6
STREPTOCOCCAL DISEASE, GP A	0.5	0.3	0.6	0.6	0.2	0.3	0.5	0.9	0.4	0.4	0.0	0.1
SYPHILIS, PRIMARY & SECONDARY	10.5	2.3	5.7	11.0	15.4	38.4	13.6	11.4	4.5	3.3	0.7	3.7
TETANUS	0.1	0.0	0.4	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2
TUBERCULOSIS	13.9	5.9	6.6	11.5	8.6	10.0	20.6	8.8	10.8	6.9	15.6	22.5
TYPHOID FEVER	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1
TYPHUS, MURINE	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
VIBRIO INFECTIONS	0.2	0.0	0.0	0.1	0.1	0.1	0.3	0.3	0.1	0.0	0.0	0.3

TB totals from Region 6 do not include cases from the Texas Department of Corrections (cases=61, rate 61.9/100,000). These cases are included in the statewide totals.



APPENDIX A

Reportable Conditions in Texas

Several Texas laws require specific information regarding reportable conditions to be provided to the Texas Department of Health. The Communicable Disease Prevention and Control Act (Health & Safety Code, Chapter 81) requires physicians, dentists, veterinarians, and chiropractors to report, after the first professional encounter, each patient examined who is suspected of having a reportable disease. Also required to report are certain individuals from hospitals, laboratories, and schools. Detailed rules on the reporting of notifiable diseases and conditions and the duties of local health authorities may be found in Article 97, Title 25, Texas Administrative Code.

Diseases reportable immediately by telephone to local health departments or Texas Department of Health by name, age, sex, racelethnicity, DOB, address, telephone number, disease, date of onset, physician, and method of diagnosis.

TDH Infectious Disease Epidemiology
& Surveillance Division
(CALL TOLL-FREE 1-800-252-8239)

Botulism, foodborne
Cholera
Meningococcal infections, invasive[1]
Plague
Rabies in Man
Viral hemorrhagic fevers
Yellow Fever

TDH Immunization Division
(CALL TOLL-FREE 1-800-252-9152)

Diphtheria
Haemophilus influenzae infections, invasive[1]
Measles (rubeola)
Pertussis
Poliomyelitis, acute paralytic

Outbreaks, exotic diseases, and unusual group expressions of illness which may be of public health concern also should be reported immediately.

Diseases reportable to local health departments[2] by name, age, sex, racelethnicity, DOB, address, telephone number, disease, date of onset/occurrence, physician, and method of diagnosis. Report these diseases on a weekly basis except for rubella and tuberculosis which should be reported within one working day.

Acquired immune deficiency syndrome (AIDS)[3]
Amebiasis
Anthrax
Asbestosis[4]
Botulism (infant)
Brucellosis
Campylobacteriosis
Chancroid[5]
Chlamydia trachomatis infection[5]
Dengue
Encephalitis (specify etiology)
Escherichia coli O157:H7 infection
Gonorrhea[5]
Hansen's Disease (leprosy)
Hantavirus infection
Hemolytic uremic syndrome (HUS)
Hepatitis, acute viral (specify type)[6]
Injuries (specify type)[7]
  Spinal cord injury
  Near drowning
Lead, adult elevated blood[4]
Legionellosis
Listeriosis
Lyme disease
Malaria
Meningitis (specify type)[8]
Mumps
Pesticide poisoning, acute occupational[4]
Relapsing fever
Rocky Mountain spotted fever
Rubella
Salmonellosis, including typhoid
Shigellosis
Silicosis[4]
Streptococcal disease, invasive Group A
Syphilis[5]
Tetanus
Trichinosis
Tuberculosis[9]
Tuberculosis infection in persons less than 15 years of age[9]
Typhus
Vibrio infections

By Number Only: Chickenpox

By last 4 digits of social security number; sex; racelethnicity; DOB; city, county, and zip of patient's residence; and name, address, and telephone number of physician: HIV infection in persons 13 years of age and older.

By name; sex; race/ethnicity; DOB; city, county, and zip of patient's residence; and name, address, and telephone number of physician: HIV infection in persons less than 13 years of age.

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[1]Includes meningitis, septicemia, cellulitis, epiglottitis, osteomyelitis, pericarditis, and septic arthritis.
[2]The local or regional health department shall collect reports of diseases and transmit them at weekly intervals to the TDH.
[3]Reported by physician only once per case, following initial physician diagnosis.
[4]The Occupational Disease Reporting Act (Health & Safety Code, Chapter 84) requires physicians and directors of laboratories to report these occupationally related diseases to the Texas Department of Health at 5121458-7269.
[5]Syphilis, gonorrhea, chancroid, and laboratory-confirmed *Chlamydia trachomatis* infections are reportable in accordance with Sections 97.132, 97.134, and 97.135 of TAC. Form STD-27, "Confidential Report of Sexually Transmitted Disease," shall be used to report these sexually transmitted diseases. Questions may be directed to 5121458-7463.
[6]Includes types: A; B; C; D (Delta); E; non-A, non-B; and unspecified.
[7]The Injury Prevention and Control Act (Health & Safety Code, Chapter 87) requires physicians, medical examiners, and Justices of the Peace to report the injuries to local health departments or to the Texas Department of Health 5121458-7266.
[8]Includes asepticlviral, bacterial (specify etiology), fungal, and other.
[9]Report tuberculosis on Form TB-400, "Report of Case and Patient Services." Questions may be directed to 5121458-7448.

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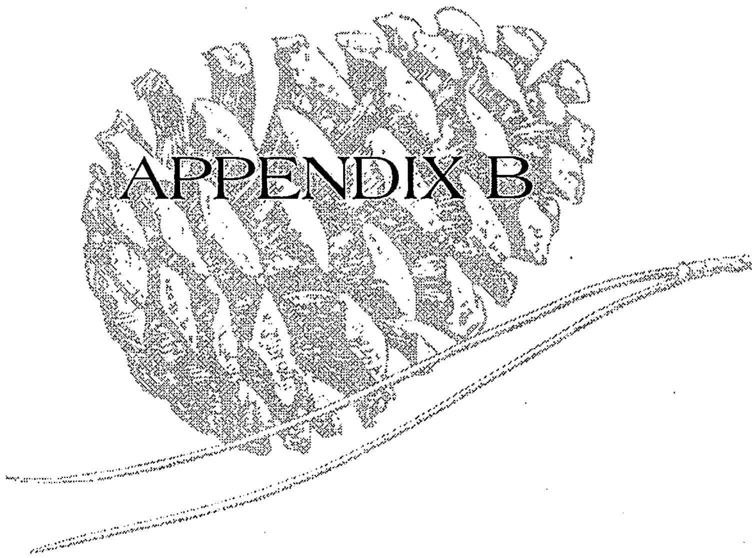
APPENDIX B



Texas Department of Health Annual Publications

Associateship of Disease Control and Prevention (512) 458-7729
Epidemiology in Texas Annual Report

Bureau of Chronic Disease Prevention and Control (512) 458-7200
Texas Behavioral Risk Factor Surveillance: Data Summary
Cancer Registry Division
Texas Cancer Mortality Statistics

Bureau of Communicable Disease Control (512) 458-7455
Tuberculosis Elimination Division
Tuberculosis in Texas Annual Statistical Report

Bureau of Community Oriented Primary Care (512) 458-7771
Primary Health Care Services Program Annual Report

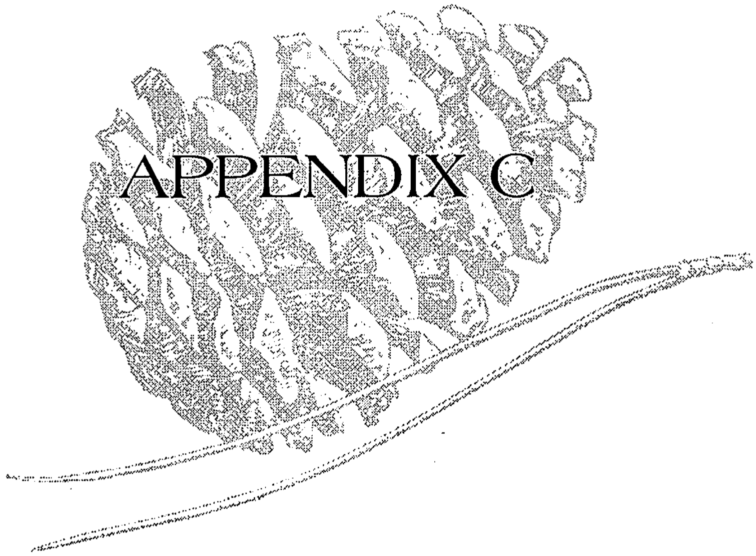
Bureau of HIV and STD Prevention (512) 490-2500
HIV and STD Epidemiology Division
STD Control Division Annual Statistical Report
HIV and STD Health Resources Division
HIV Services Program Annual Report

Bureau of State Health Data and Policy Analysis (512) 458-7261
Healthy Texans 2000 Partnership

Bureau of Vital Statistics (512) 458-7692
Statistical Services Division
Texas Vital Statistics Annual Report

Kidney Health Care Division (512) 458-7796
Kidney Health Care Division Annual Report

APPENDIX C



Glossary

anencephaly. a severe birth defect caused by abnormal development of the brain during the first trimester; congenital absence of the cranial vault, with cerebral hemispheres completely missing or reduced to small masses attached to the base of the skull.

asbestosis. a pneumoconiosis produced by inhalation of asbestos fibers. A chronic disease with slow onset that usually requires several years of exposure depending on the intensity of exposure. Characterized clinically by diffuse interstitial pulmonary fibrosis, often accompanied by thickening and sometimes calcification of the pleura. Shortness of breath on exertion is the most common presenting symptom. **A** chronic dry cough is common, but the cough may be productive, especially among smokers. Finger clubbing may appear in advanced cases.

average. the arithmetic mean. The measure of central location calculated by adding together all the individual values in a group of measurements and dividing by the number of values in the group.

bicycle-related E-Codes. E800 through E807, with fourth digit 0.3; E810 through E825, with fourth digit 0.6; E826.1 or 826.9; E827 through E829, with fourth digit 0.1

chronic carrier. a state of persistent infectivity and ongoing inflammation irrespective of the presence or absence of disease symptoms.

cluster. an aggregation of cases of a disease or other health-related condition, particularly cancer and birth defects, which are closely grouped in time and place. The ndmber of cases may or may not exceed the expected number; frequently the expected number is not known.

consolidation. merging data from multiple reports of the same cancer case to create one master record containing all available information for that case.

E-Codes. international classification of diseases external cause of injury codes, developed by the world health organization. E-Codes include injuries caused by motor vehicles, falls, firearms, drownings and near drownings, fires and burns, poisonings, and other causes.

head injury N-Codes. skull fracture (N800.0 through N801.9 and N803.0 through N804.9); intracranial injury (N850.0 through N854.9); and late effects of either skull fracture (N905.0) or intracranial injury without skull fracture (N907.0).

incidence rate. (sometimes referred to simply as **incidence.)** a measure of the frequency with which an event, such as a new case of illness, occurs in a population over a period of time. The numerator is the number of new cases occurring during a given time period; the denominator is the population at risk during the same time period.

in situ cancer. earliest detectable malignant lesions; small tumors (usually only a few millimeters in diameter) that are localized in tissues.

invasive cancer. malignant tumors which have infiltrated and actively destroyed surrounding tissue.

mean, arithmetic. See average.

median. the measure of central location which divides a set of data into two equal parts; the middle of a set of data that has been put into rank order; a measure of central tendency that is the middle value in an orderly set of values. (For example: For the following set of incubation periods: 24, 25, 29, 30, 31 - the median is 29. Two observations are larger, and two are smaller.)

morbidity. any departure, subjective or objective, from a state of physiological or psychological well-being.

mortality rate. a measure of the frequency of occurrence of death in a defined population during a specified interval of time.

n-codes. international classification of diseases of the nature of the injury and body part affected, developed by the World Health Organization. N-codes include, for example, head injury, spinal cord injury, fractures, abdominal/thoracic injuries, and others.

near drowning. survival for at least 24 hours following asphyxiation due to submersion in water.

period prevalence. the amount of a particular disease present in a population over an extended period of time.

point prevalence. the amount of a particular disease present in a population at a single point in time.

prevalence rate. (sometimes simply referred to as prevalence.) the amount of a given disease or other condition in a given population at a designated time; the proportion of a population that is affected by a disease or condition at a given point in time; the numerator is the number of all cases present during a given time period, and the denominator is the population during the same time period.

rate. an expression of the frequency with which an event occurs in a defined population; usually defined as the number of cases per 100,000 population.

sentinel provider system. an active surveillance system used to gauge the occurrence of disease in an area; individual physicians and clinic/hospital staff, or sentinels, who volunteer to periodically report on various reportable diseases.

silicosis. fibrotic lung disease caused by inhaling crystalline forms of silica (silicon dioxide [SiO_2]). Silicosis reduces the ability of the lungs to work properly and may eventually cause death from heart failure or from destruction of lung tissue.

nodular silicosis. (also called classic or pure silicosis.) a disorder characterized by hyaline and nodular lung lesions that may aggregate into large fibrotic masses (conglomerate silicosis or progressive massive fibrosis [PMF]).

acute silicosis. a rapidly developing disorder having features of alveolar preteinosis and fibrosing alveolitis.

mixed dust fibrosis. a disorder showing fibrotic lesions (some of which may be typical "silicotic" nodules) and others irregular in shape (that arise from inhaling dusts of silica and other agents [e.g., iron oxide, coal, welding fumes]).

diatomaceous earth pneumoconios. a condition characterized by fibrosing alveolitis and a prominent cellular reaction. Diagnosis is based on symptoms, exposure history, physical examination, chest x-rays, pulmonary function tests, and sometimes pathological examination of tissue. Symptoms include shortness of breath, coughing, tiredness, weakness, blue or gray skin color, loss of appetite, and chest pains.

Texas Occupational Disease Reporting Act. an act passed by the 69th Legislature in 1985 that requires physicians and laboratory directors to report adult elevated blood lead levels and cases of suspected or confirmed asbestosis and silicosis. The act also authorized the Texas Board of Health to add other preventable occupational diseases to the list. Later that same year, the Board made acute occupational pesticide poisoning a reportable condition.

virus isolation. A laboratory procedure whereby viruses are recovered directly through in *vitro* culture from clinical specimens.

TDH

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