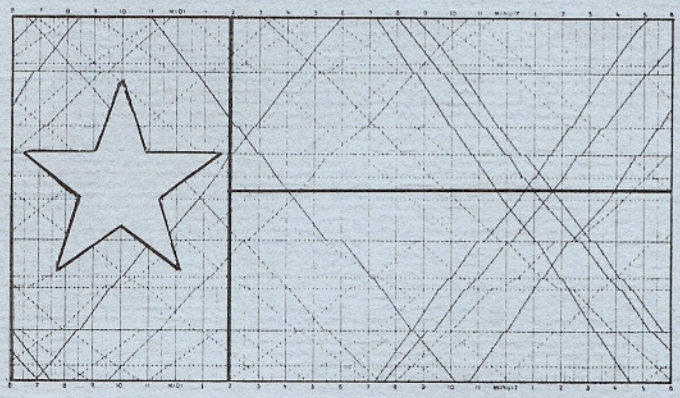
REPORTED MORBIDITY & MORTALITY IN TEXAS



1986

FRANK C. BRYANT, JR., M.D., F.A.A.F.P.
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TEXAS DEPARTMENT OF HEALTH
BUREAU OF EPIDEMIOLOGY
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ROBERT BERNSTEIN, M.D., F.A.C.P.
COMMISSIONER OF HEALTH

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REPORTED MORBIDITY AND MORTALITY IN TEXAS 1986 ANNUAL SUMMARY

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&
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FOREWORD

Over a century ago, Benjamin Disraeli reflected on the inevitability and constancy of change. This is seen clearly in the occurrence and patterns of reportable diseases in Texas during 1986. For example, the relationship of acquired immune deficiency syndrome (AIDS) in at least six other reportable infections will be discovered by the reader. Likewise, an "old-fashioned" epidemic disease, shigellosis, was given an unusual opportunity to spread through the massive food processing and distribution system of the franchised fast-food industry. Human ehrlichiosis, a disease caused by a rickettsia-like organism, is so newly recognized that its clinical picture has yet to be completely described; six cases of this disease were reported in Texas in 1986. Finally, and paradoxically, with rubella occurring near its all-time low incidence, three cases of congenital rubella syndrome were reported, after a four-year absence in the state. The reader will find the details on these and other conditions in highly readible narrative and in graphic figures, today's "fast food-for-thought."

Overall the control of communicable disease in Texas has been highly successful given the conditions of rapid population growth and an approximate 1000 miles of international border. With the support of private and public health providers, local, state, and federal governments, and, of course, the citizens of Texas, the Texas Department of Health will continue to work toward the control of communicable disease in Texas.

Frank Bryant, Jr., M.D., F.A.A.F.P, Chairman
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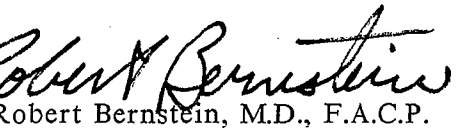


Robert Bernstein, M.D., F.A.C.P.
Commissioner of Health

INTRODUCTION

HISTORICAL BACKGROUND

Interest in public health in Texas began in the 1800s at a time when much of the state was still unsettled frontier territory. The primary public health concern in these early years was to isolate and prevent the spread of epidemic diseases. Historical records reveal that epidemics of yellow fever in the Texas Gulf coast area caused thousands of deaths between 1837 and 1864. As a result, the citizens of Galveston approved in March 1850 the first quarantine regulations passed in the state of Texas. Within six years, the occurrence of smallpox throughout inland towns of Texas and yellow fever in coastal towns necessitated quarantine procedures over the entire state. Consequently, the Quarantine Act of 1856 was passed. This act gave cities and counties the authority to establish their own quarantine regulations as appropriate for their respective jurisdictions.

In the late 1870s, epidemics of yellow fever and smallpox raged throughout Mexico and bordering states and threatened to spread into Texas. Government officials feared this approaching "sickly season" and put forth every possible effort to prevent it. On April 10, 1879, the quarantine laws were revised, and the position of State Health Officer was created. Robert Rutherford was appointed by Governor O.M. Roberts to be the first State Health Officer of Texas. This action led to the creation of the Texas Quarantine Department in 1891.

As the population of Texas grew, greater interest in maintaining complete and accurate records of the public's health developed. By the beginning of the 20th Century, discoveries about diseases had been made making it possible for birth and death records to be analyzed and disease incidence to be studied. As a result, the department was reorganized in 1903 as the Department of Public Health and Vital Statistics. The department has since undergone several name changes which reflect the expanded scope and purpose of the state's public health agency. [The agency became known as the Texas Department of Health in 1977.1

In 1910, a year after the first State Board of Health was appointed, the Sanitary Code was enacted. It required the reporting of anthrax, Asiatic cholera, bubonic plague, dengue, diphtheria, epidemic dysentary, epidemic meningitis, epidemic typhus, leprosy, scarlet fever, smallpox, trachoma, tuberculosis, typhoid, and yellow fever. In May 1920, procedures for the reporting and management of communicable diseases in Texas became operative. Since that time, a system based on the communicable disease reports originating with practicing physicians and forwarded by designated reporting agents has served as the primary mechanism for the surveillance of communicable diseases of the Texas Department of Health.

During the 1940s, poliomyelitis and murine typhus were major public health problems in Texas. The state's militia was sometimes used to maintain roadblocks on highways to quarantine communities experiencing outbreaks of poliomyelitis. Concerns about the spread of murine typhus necessitated community-wide campaigns--with a five-cent bounty on rat tails--to eradicate rats. Paralytic polio'myelitis has been eradicated since the advent of vaccine, and a marked decrease in the number of reported murine typhus cases has occurred due to improved general sanitation. As trends in communicable diseases change it is necessary to evaluate and revise applicable public health laws from time to time. The Texas Board of Health has the authority to adopt specific rules and regulations relating to the prevention, reporting, and control of communicable diseases and to designate which diseases are "reportable." The most important Board of Health actions which affected communicable disease reporting in Texas occurred in:

March 1983: The Board added acquired immune deficiency syndrome (AIDS) to the list of reportable diseases in Texas.

September **1983:** The Texas Communicable Disease Prevention and Control Act of 1983 became effective. This act made significant changes in communicable disease reporting procedures, and added registered nurses, laboratory directors, school administrators, day-care center directors, nursing home administrators, hospital administrators, and hospital infection control practitioners to those required to report communicable diseases to

the Texas Department of Health.

July 1984: Rheumatic fever and smallpox were removed from the list of reportable diseases, and bacterial meningitis, campylobacteriosis, coccidioidomycosis, dengue, histoplasmosis, legionellosis, toxic shock syndrome, and viral hemorrhagic fevers were added.

September 1985: The Texas Board of Health under authority of the Occupational Disease Reporting Act, designated certain occupational diseases reportable in Texas: acute occupational pesticide poisoning, asbestosis, elevated blood lead in adults, and silicosis.

September 1986: *Haemophilus influenzae* infections, hepatitis type D (delta agent), *Listeria* infections, Lyme disease, and *Vibrio* infections were added to the list of reportable diseases in Texas. The scope of meningitis reporting was expanded to include all types (bacterial, aseptic/viral, fungal, other). Streptococcal sore throat (including scarlet fever) was removed from the list of reportable diseases.

DISEASE SURVEILLANCE

Surveillance of disease refers to the ongoing examination of the occurrence and distribution of disease and events or conditions that are important to effective control. Surveillance is a continuous and systematic process which includes: the collection of demographic and environmental data; the evaluation of morbidity, mortality, and laboratory data and information on animal reservoirs and vectors; investigation of epidemics and individual cases; and special surveys (e.g., of serologic studies, hospital admissions, registries).

The objective of surveillance is to determine the extent of disease and the risk of transmission so control measures can be applied effectively and efficiently. Surveillance data must be current and complete to reveal the actual occurrence and distribution of disease. The Bureau of Epidemiology, Texas Department of Health, is responsible for coordinating communicable disease surveillance in Texas and requires that disease reports include the patient's name, age, sex, race, city of residence, physician's name, date of onset, and method of diagnosis. For selected diseases, additional information such as the source of infection, mode of transmission, and confirmatory laboratory results is requested. In certain outbreak situations, it is also necessary to identify susceptibles and to recommend specific control measures. These data are necessary if the objective of surveillance is to be achieved.

THE REPORTING SYSTEM

There are over 300 designated reporting agents throughout the state; these include city and county health departments and health districts, selected state schools, state hospitals, veterans' hospitals, and military installations. Numerous public and private hospitals, physicians in private practice, and other health professionals also regularly report to the Bureau of Epidemiology.

In January 1984, the Bureau of Epidemiology implemented the Reportable Disease Surveillance Program, a microcomputer system which allows epidemiologists and other support staff within the Bureau direct access to Texas morbidity data. These data may now be analyzed and disseminated to reporting agents in a more timely fashion.

A toll-free telephone number (1-800-252-8239) is available to facilitate regular morbidity and outbreak reporting in Texas. This system assures the rapid transfer of data from physicians, nurses, hospitals, and laboratories to local and regional health departments who in turn forward these data to the Texas Department of Health. This telephone line is located in the Bureau of Epidemiology office in Austin and is answered 24 hours a day; messages may be left on an answering machine after regular working hours and on holidays.

The Bureau of Epidemiology also supplies reporting forms (EPI-1, see Appendix) to designated reporting agents. The forms are completed and returned to the Bureau of Epidemiology each week, or reports can be made directly to the central office in Austin on the toll-free number. Information regarding

reportable diseases is also received by the Bureau of Epidemiology through other means including laboratory reports, completed case investigation forms, and death certificates which have been filed with the Bureau of Vital Statistics, Texas Department of Health. In addition, several local health departments and public health regional offices now have the capability to transmit epidemiologic data and morbidity reports directly to the Bureau of Epidemiology via an electronic mail network.

Once the data are received in the Austin office, they are organized, recorded, and examined daily by epidemiologists and other technical staff to determine disease trends. fluctuations in morbidity, seasonal variations, changes in disease distribution, and other aspects of the natural history of endemic and epidemic diseases. A statistical summary of these data is published monthly in *Texas Preventable Disease News* which is distributed throughout the state to local health departments and hospital infection control practitioners, nationally to other state epidemiologists, and upon request to other interested persons. This publication describes preventable disease control activities on local, state, and national levels, as well as other items of public health interest.

Furthermore, Texas is one of 31 states, as well as Washington, DC and New York City, participating in the Centers for Disease Control's Epidemiologic Surveillance Project (ESP) system which allows the CDC to collect specific data on each case of a reportable disease, rather than aggregrate case counts as had been done in the past. Using the ESP system, morbidity data collected by the Bureau of Epidemiology are transmitted electronically each week to the CDC. These data are further summarized and are published weekly in *Morbidity and Mortality Weekly Report.*

The communicable disease reporting system in Texas is needed for the prevention and control of certain communicable diseases which threaten the lives and well-being of the citizens of Texas. Early detection of unusual characteristics or patterns of diseases often provides sufficient evidence for initiation of preventive measures. In addition to statewide reporting, cooperative efforts in the area of communicable disease control are made with other state health departments and the national Centers for Disease Control in Atlanta, Georgia.

OTHER SOURCES OF DATA

Data submitted to the Bureau of Epidemiology through the statewide morbidity reporting system are supplemented by other data collection procedures and surveillance activities of the Texas Department of Health. The Bureau of Vital Statistics provides mortality data on infectious and other reportable diseases and conditions to the Bureau of Epidemiology. The Bureau of Laboratories provides results of serologic and bacteriologic testing, virus isolation, and other special laboratory studies. The Bureau of Veterinary Public Health (Zoonosis Control Division) coordinates with the Bureau of Epidemiology on data relating to rabies, arboviral disease, and other zoonotic diseases affecting man. The Bureau of Communicable Disease Control (STD Control Division, Immunization Division, and Tuberculosis Control Division) plays an important role by providing data directly related to reportable disease investigations and other Bureau of Epidemiology activities.

The population figures used in computing incidence rates for the state for the period 1977-1980 (Table II, Appendix) are from the *Current Population Reports,* Series P-25, published by the Federal Bureau of the Census. The population figures for 1981-1986 were provided by the Bureau of State Health Data and Policy Analysis, Texas Department of Health.

EXPLANATORY NOTES

The reporting period for the data contained in this report is the calendar year January 1, 1986-December 31, 1986. Frequency counts include cases whose dates of onset occurred during this period. Delayed reports, that is, case reports received during 1986 but whose onsets occurred in 1985 are excluded from this report.

The distribution of cases among Texas counties is based on the patient's county of residence. Cases are allocated to their county of residence regardless of where they become ill or are hospitalized or diagnosed. Individuals living outside Texas but who become ill and are hospitalized or diagnosed in Texas are not included in Texas morbidity. These cases are referred through an interstate reciprocal

notification of disease system to the appropriate state epidemiologist in the state where the patient resides.

Incidence rates measure the frequency of the occurrence of new cases of a disease within a defined population during a specified period of time. These rates are expressed in this report as the number of reported cases of a disease per 100,000 population unless otherwise specified. Rates have been rounded in most cases to one decimal place. When comparing rates for different population groups or time periods, there are limitations inherent in population projections, and there are probable variations in the degree of underreporting. Rates based on small frequencies should be interpreted with caution since sampling errors may be large. Case-fatality ratios in this report are expressed as percentages. These ratios measure the number of persons reported as having a specific disease who die as a result of that illness.

The mortality data which appear in Table III, Appendix, are tabulations provided by the Statistical Services Division, Bureau of Vital Statistics, and may not be identical to the mortality data referred to in the summaries of individual diseases. These discrepancies may be due in part to following the procedures in the Ninth Revision of the *International Classification of Diseases* whereby the category to which the death is assigned is determined by the information provided on the death certificate. Differences in mortality data will also result when the patient's onset of disease and subsequent death occur in separate years.

The Bureau of Epidemiology uses the following definitions of the five racial/ethnic categories referred to throughout this report. These definitions are provided by the *U.S. Department of Commerce: Statistical Policy Handbook* and published in the Centers for Disease Control's *Manual of Procedures for National Morbidity Reporting & Public Health Activities.*

White: A person having origins in any of the original peoples of Europe, North Africa, or the Middle East.

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

Black: A person having origins in any of the black racial groups of Africa.

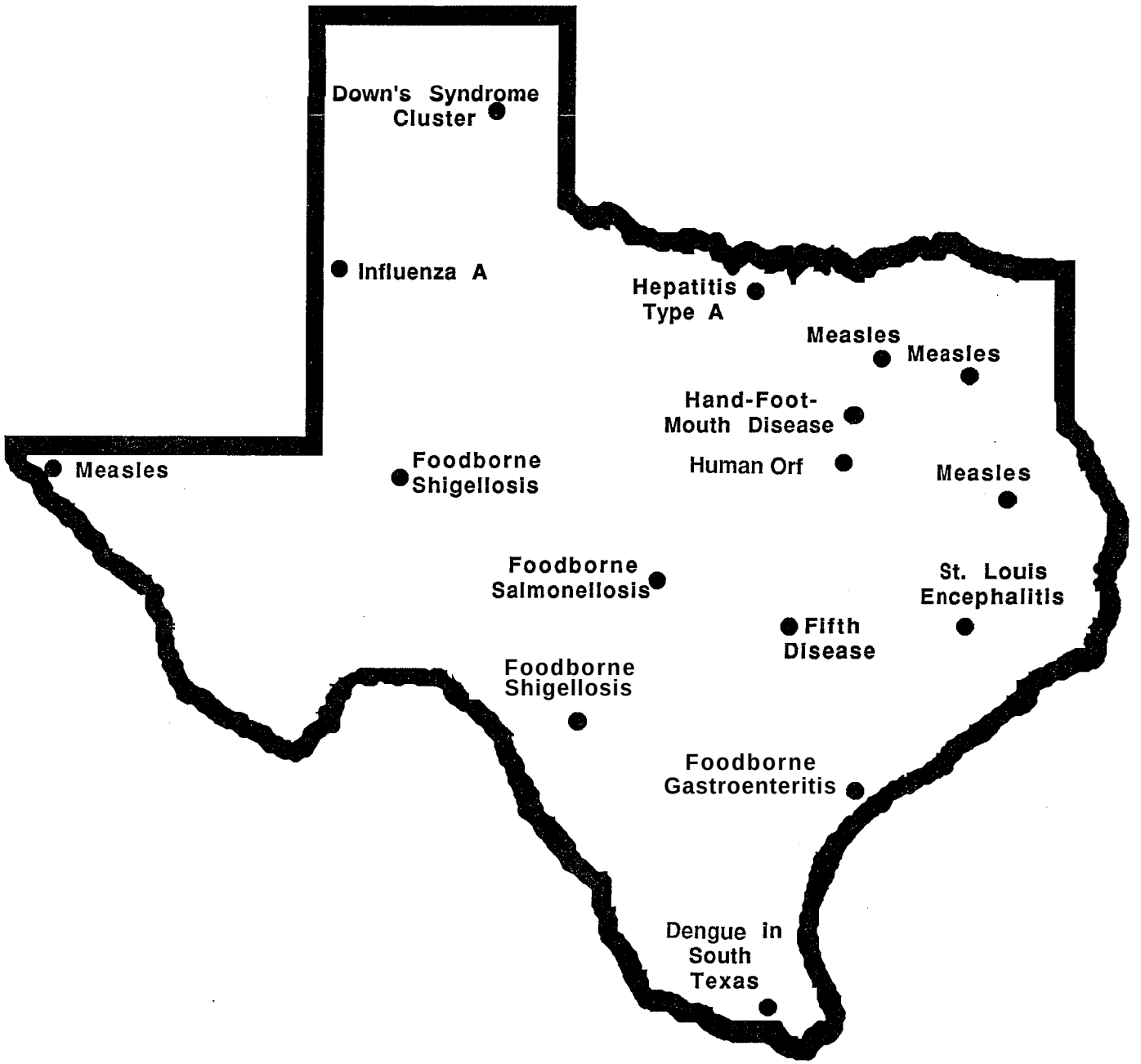
Asian or Pacific Islander: A person having origins in any of the original peoples of Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes China, Japan, India, Korea, the Philippine Islands, and Samoa.

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

The category which most closely reflects the individual'srecognition in his community is used for purposes of reporting on persons who are of mixed racial and/or ethnic origins.

Figure 1

Selected Investigations in 1986
Bureau of Epidemiology, Texas Department of Health



SELECTED DISEASE SUMMARIES

Erratum: Figure 3 appearing on page 8 of this report is in error. Tarrant County was inadvertently left blank and should be shaded indicating 100-299 cases of AIDS through December 31, 1986. Tarrant County is in North Texas, directly west of Dallas County (black, 500-999 cases.)

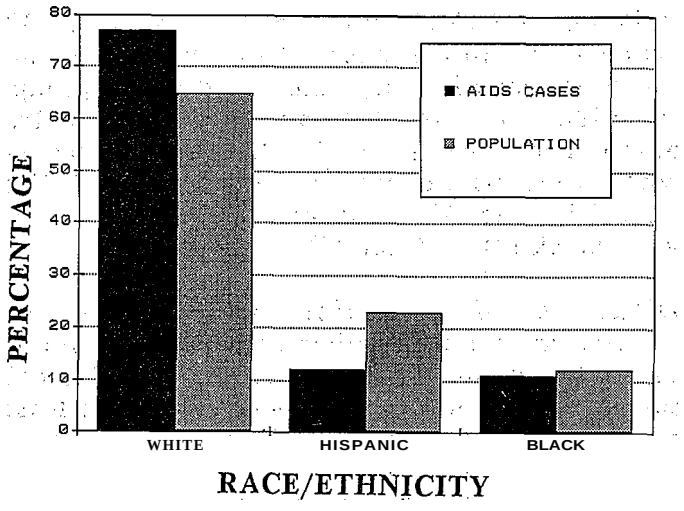
ACQUIRED IMMUNE DEFICIENCY SYNDROME

The incidence of acquired immune deficiency syndrome (AIDS) in Texas continues to increase. By December 1986, over 32,000 AIDS cases had been diagnosed nationwide, and 2097 of these cases were Texas residents. A total of 995 Texas cases had onset in 1986.

Seventy-seven percent (77%) of the cases diagnosed in Texas in 1986 were white, 12% were Hispanic, and 11% were black. These groups represented 66%, 22%, and 12%, respectively, of the Texas population (Figure 2). Nationally, minorities were disproportionately represented; 25% of the U.S. cases were black, and 14% were Hispanic. In contrast, blacks represent 12% and Hispanics, 6%, of the U.S. pooulation.

Figure 2

Distribution of AIDS Cases by **Race/Ethnicity**
Texas - **1986**



Males accounted for 98% of the adults diagnosed with AIDS in Texas in 1986. Homosexuality or bisexuality .was the predominate risk factor in 75-80% of males, regardless of race/ethnicity, The distribution of homosexual/bisexual male cases included whites (80%), Hispanics (79%), and blacks (75%).

Table 1

Distribution of Adult Male AIDS Cases Diagnosed in Tesas by Race/Ethnicity and Risk Group, 1986

	WHITE		BLACK		HISPANIC		OTHER	
Patient Group	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Homosexual/Bisexual	593	80%	77	75%	88	79%	2	50 %
IV Drug User	12	2	9	9	7	6	0	-
Homosexual/IV Drug User	108	14	9	9	11	10	0	-
Hemophiliac	6	1	0	-	1	1	0	-
Heterosexual Contact	2	0	0	-	0	-	0	-
Transfusion Recepient	12	2	1	1	0	-	0	-
Undetermined	12	2	7	7	4	4	2	50%
TOTAL	745	100 %	103	100 %	111	100 %	4	100 %

Twenty-four of the cases diagnosed in 1986 were female, representing 2% of the adult cases. Thirty-eight percent (38%) of these female cases were transfusion associated; 25% were attributed to heterosexual contact with a person at risk; 25% had no identified risk, and 13% were IV drug users. The distribution of female cases by race/ethnicity included: whites, 16 cases; blacks, 4 cases; and Hispanics, 4 cases. Of white females, 7 acquired their infections through transfusions, 4 through heterosexual contact, and one was an IV drug user; 4 had no identified risk factors. Of black females, 2 were IV drug users; 1 was attributed to hetero'sexual contact, and 1 had no identified risks. 'Of the four Hispanic female cases, 2 were transfusion associated; 1 was attributed to heterosexual contact; and 1 had no identified risks. (See Table 2 for distribution of adult female cases by race/ethnicity and risk group.)

Table 2

Distribution of Adult Female AIDS Cases Diagnosed in Texas by Race/Ethnicity and Risk Group, 1986

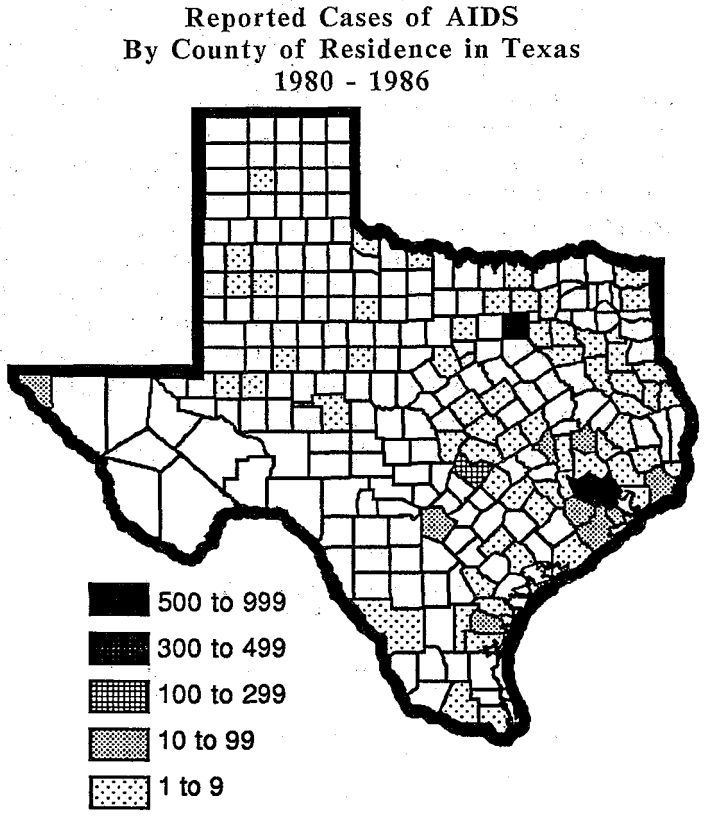
	WHITE		BLACK		HISPANIC	
Patient Group	Number	Percent	Number	Percent	Number	Percent
IV Drug User	1	6 %	2	50 %	0	-
Heterosexual Contact	4	25	1	25	1	25
Transfusion Recipient	7	44	0	-	2	50
Undetermined	4	25	1	25	1	25
TOTAL	16	100 %	4	100 %	4	100 %

Only 1% of Texas AIDS cases have been pediatric cases (children under 13); eight had onset in 1986. Of these children, 5 were female, and 3 were male; 2 were white, 3 were black, and 3 were Hispanic. Four cases were transfusion associated (3 blacks, 1 white); two were hemophiliacs (both Hispanic); two had HIV positive mothers (1 white, 1 black).

Investigation is pending in one case.

AIDS is no longer a disease solely of the major metropolitan areas. When the first cases were reported between 1980-1982, all were reported from counties with populations of 50,000 or greater. By December 1986, 82 counties had reported 2,097 cases, and only 50% of these counties had populations >50,000. Of the 24 counties reporting their first AIDS cases in 1986, 75% had populations <50,000. More and more, physicians practicing in smaller communities will find themselves evaluating, treating, advising, and caring for patients with AIDS or AIDS related conditions. The geographic distribution of cases is presented in Figure 3.

Figure 3



AMEBIASIS

A four-year trend of declining numbers of reported cases of amebiasis was reversed in 1986. The number of cases reported statewide was 394, an increase of 41% over the 279 cases reported in 1985, but still below the 1981-85 average of 429 cases per year. The 1986 incidence rate for Texas was 2.4 cases per 100,000 population.

Texas Department of Mental Health and Mental Retardation (MHMR) facilities have traditionally reported a substantial portion of the state's cases. In 1986, 48 MHMR residents were reported as having amebiasis. These cases represented 12% of the total cases, but only half of the 23% that MHMR cases contributed to the 1985 case total. Due to special circumstances associated with institutionalized cases, i.e. poor personal hygiene and close person-to-person contact, and the very small risk of spread to the general population, these cases will not be included in further analysis.

Public Health Region (PHR) 8 led the state with 116 cases, resulting in a regional incidence rate of 7.6 cases per 100,000 population, more than three times that of the state as a whole. The only other public health region that experienced an incidence rate greater than that for Texas was PHR 3 (2.5 cases per 100,000 population).

Although males (181) continued to outnumber females (163), the 1.6:1 (male:female) ratio in 1985 declined to 1.1:1 in 1986. Likewise, the striking 2.8:1 (M:F) ratio in 1985 in the 20-39 year age group disappeared in 1986, when the sex ratio was virtually equal in this age group. In 1986, in the 40+ age group, females outnumbered males 2 to 1. Of the 285, cases on whom race/ethnicity was indicated, 219 (77%) were Hispanic, 59 (21%) were white, and 7 (2%) were black (4) or Asian **(3).**

Diagnosis of infection with *Entamoeba histolytica* in one member of a family should prompt consideration of serologic and stool screening of other family members, In at least two cases in 1986, diagnosis of a young child with hepatic abscess due to *E. histolytica* led to the identification of family clusters of infection. In Travis County, diagnosis of the initial case led to the discovery of three siblings and a parent infected with amebiasis. The diagnosis of amebiasis in a child from Ector County prompted screening of extended family members; this screening led to identification of five additional cases, including both parents.

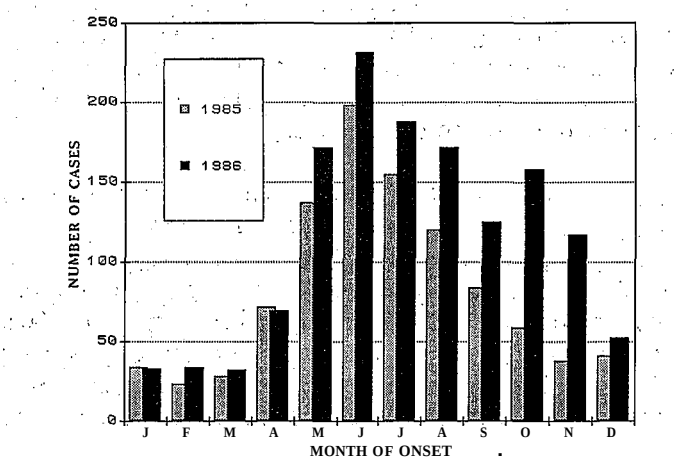
One death due to amebiasis was identified in 1986, though actual onset of symptoms and hospitalization occurred in 1985. The deceased, a 30-year-old, white male resident of Cameron County, died in early January of complications associated with hepatic abscess. He had regularly visited with his wife's family in Mexico, and the assumption was that he had acquired his infection in Mexico.

ASEPTIC MENINGITIS

In 1986, the number of reported cases of aseptic meningitis in Texas increased 40% over the number reported in 1985; 1383 cases were reported in Texas during 1986 compared with 989 cases in 1985 (Figure 4). This increase may be attributed in part to ECHO 4 activity reported primarily from Harris County in 1986.

Figure 4

Reported Cases of Aseptic Meningitis in Texas by Month of Onset, **1985 & 1986** Compared



Etiologic agents were identified and reported for 352 (25%) of the 1383 cases in 1986, and exactly half (176) of these cases were reported solely as a result of the Infectious Disease Division's virus surveillance system (see Virus Surveillance). Virtually all (99%) of these agents were enteroviruses (Table 3). Echoviruses accounted for 241 of the cases, and of these, half were ECHO 4. Eighty-one (68%) of the reported ECHO 4 meningitis cases were residents of Harris County. ECHO 4 activity in Harris County began in March with the peak incidence occurring in May and a rapid decline through October when the last case was reported (Figure 5). Viral isolation from the cerebrospinal fluid is not attempted from all cases of aseptic meningitis, thus it can be assumed that many more of the cases reported from Harris County were associated with ECHO 4 virus.

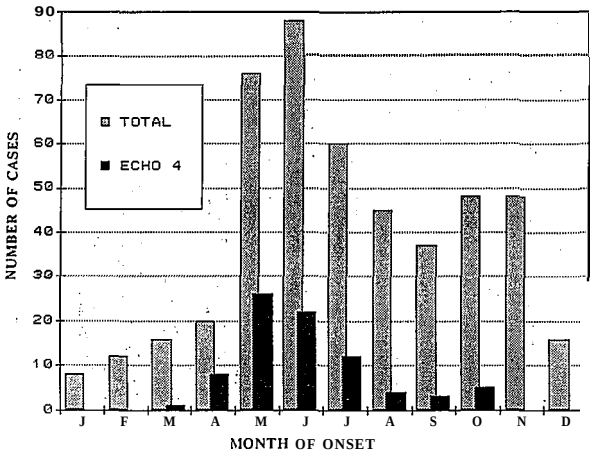
Table **3**

Viral Agents Associated with Reported Cases of Aseptic Meningitis in Texas, 1986

Viral Agent	# of Cases
Adenovirus	**3**
Echovirus 4	**120**
Echovirus 11	**26**
Echoviruses, 19 other types	**95**
Coxsackieviruses (Group A)	**7**
Coxsackieviruses (Group B)	**45**
Coxsackieviruses (not specified)	**1**
Enteroviruses, unspecified	**53**
Herpes Simplex	**1**
Herpes Zoster	**1**
TOTAL	**352**

Figure 5

Reported Cases of Aseptic Meningitis in Harris County Total Cases and ECHO 4 Cases Compared by Month of Onset, **1986**



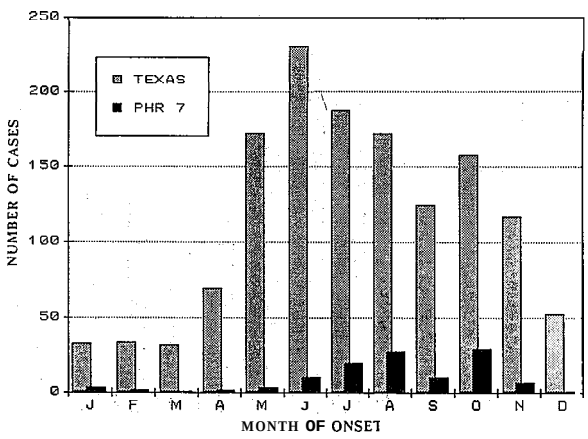
Enteroviruses are readily communicable in family and child-care settings, though only one cluster of aseptic meningitis has been recognized in a Texas child-care facility. This cluster occurred in Harris County where eight cases of laboratory-confirmed ECHO 4 meningitis cases were identified in one child and seven adults (parents and teachers).

In 1985, ECHO 4 was associated with 38 cases of aseptic meningitis in Bell County; these cases represented 69% of the 55 cases associated with the virus statewide. Yet in 1986, there was only one case of ECHO 4 meningitis reported from Bell. County during the same time period that cases were occurring in Harris County. These two clusters were probably recognized because Bell and Harris counties have laboratories associated with major medical centers where virus isolation is routinely performed.

St. Louis encephalitis (SLE) virus was also present in Harris County and other Gulf Coast areas during 1986 (see Encephalitis). Although the virus is most noted for encephalitis, infection with SLE virus can produce symptoms of febrile headache and aseptic meningitis. In years when SLE activity is demonstrated in birds, mosquitoes, and by human cases, it is likely that a number of mild human cases are diagnosed as aseptic meningitis. In contrast to ECHO 4, SLE activity occurred later in the summer, and the peak of meningitis in September and October could be attributed to SLE activity during this period. For example, the peak of aseptic meningitis cases in Public Health Region 7/10 did not occur until late summer (Figure 6). This was the same time period during which SLE was occurring in Jefferson County.

Figure 6

Reported Cases **of** Aseptic Meningitis
Texas and Public Health Region 7/10 Compared
By Month **of** Onset, Texas - 1986



BACTERIAL/OTHER MENINGITIS

A total of 533 case reports of meningitis reported as bacterial (186 cases), fungal (82), or "unspecified" (265) was received by the Infectious Diseases Division during 1986. This total excludes cases caused by Neisseria *meningitidis* (meningococcal) and *Haemophilus influenzae* (H. flu) and cases reported as aseptic meningitis; these infections are summarized individually elsewhere in this report.

PNEUMOCOCCAL MENINGITIS

There were 101 cases of pneumococcal meningitis reported in Texas in 1986 reflecting an 18% increase over the 85 cases reported in 1985. Pneumococcal meningitis is caused by the organism Streptococcus *pneumoniae*. It is a sporadic disease which occurs most frequently among young infants, the elderly, and in certain high-risk individuals. Fifty-one percent of the cases reported in Texas during 1986 occurred in these age groups.

Eighteen deaths due to pneumococcal meningitis were recorded in Texas in 1986 resulting in an overall case-fatality ratio of 17.8%. The incidence of pneumococcal meningitis is highest in the winter months; 60% (61/101) of the Texas cases occurred during this period. Cases peaked in January 1986 when 19 cases occurred; 8 of these 'cases died for a case-fatality ratio of 42% in January. Antibiotic susceptibilities were available for 38 of the organisms causing disease. All were sensitive to ampicillin and penicillin.

CRYPTOCOCCAL MENINGITIS

Eighty-two (82) cases of cryptococcal meningitis were reported to the Texas Department of Health during 1986 resulting in a 67% increase over the number of cases reported the previous vear.

Cryptococcal meningitis, caused by the organism *Cryptococcus neoformaris,* is an opportunistic fungal infection associated with acquired immune deficiency syndrome (AIDS); the increase was, therefore, associated with the increased number of AIDS cases in Texas. In 1985, 71% of the cryptococcal meningitis in Texas were AIDS patients. In 1986, this percentage increased to over 90%.

Of the seven non-AIDS cases, five were elderly patients between 71-83 years of age. Three of the non-AIDS cases died as the result of cryptococcal meningitis.

STREPTOCOCCAL MENINGITIS

Eighteen cases of Group B streptococcal meningitis were reported in 1986. Eleven (61%) were newborns, and three of these infants died resulting in a case-fatality ratio of 27% in newborns: It is estimated that half of the newborn survivors of Group B strep meningitis are left with hearing loss, blindness, cerebral palsy, and/or mental retardation.

Early onset meningitis caused by Group B streptococci is most likely acquired during passage through the birth canal. Cases with a late onset, from one week to three months after birth, are probably acquired from the environment. Four late onset cases in infants 2-5 months of age were reported in Texas in 1986.

An additional 18 cases of streptococcal meningitis were reported with other or unspecified streptococcal organisms.

Other Bacterial Meningitis

Other organisms reported in 1986 as causing meningitis were *Listeria monocytogenes* (19), *Staphylococcus* (10), *Mycobacterium tuberculosis* (8), *Escherichia coli* (3), *Salmonella* (2), and seven other organisms responsible for one case each.

BOTULISM

Five cases of botulism were confirmed by the Texas Department of Health in 1986, and infant botulism continued to be the most common form of the disease reported. Four of the five Texas cases were infants ranging in age from 7 weeks to 14 weeks. One case of foodborne botulism--the first reported in Texas since 1983--involved an elderly man.

Clostridium botulinum was isolated in the stool of each of the infants; three had type **A** toxin and one had type B demonstrated in the stool. One case each occurred in Dallas **(A),** El Paso **(A),** Harris (B), and Randall **(A)** counties. Three of the four infants were female, and all of the infants recovered from their illnesses following hospital stays which ranged from 8-59 days.

The foodborne botulism case involved an 82-year-old, Ft. Worth resident from whom type B organisms and toxin were identified in stool specimens. The patient became ill in July and was hospitalized with symptoms which included speech and breathing difficulties, ptosis, and descending paralysis. There was no history of consumption of home-canned foods. However, during the investigation, it was learned that the patient had been receiving two meals a day from a community program which provided meals to the elderly. The possibility of improper storage and heating of the foods by the patient was suspected: Upon further investigation, a pan in which one of the meals was delivered was found, and *C. botulinum* type *B* organisms were recovered by the Federal Drug Administration. Active surveillance for additional cases was initiated, but none were identified.

In 1986, the Bureau of Epidemiology began documenting all reports of suspect cases of foodborne botulism from physicians and hospitals. Nine reports were ,received throughout the year, but only the one case summarized above was confirmed following complete investigation of each suspect case.

CAMPYLOBACTERIOSIS

In its second full year as a reportable disease in Texas, a 21% increase in the number of cases of campylobacteriosis was recorded. *Campylobacter* is estimated to be as common a cause of

gastroenteritis as *Salmonella* sp. or *Shigella* sp. During 1986, 803 cases were reported resulting in an incidence rate of 4.8 cases per 100,000 population. The number of cases is approximately one-third that of salmonellosis and shigellosis, suggesting that campylobacteriosis may be under-diagnosed and underreported in Texas. We anticipate that the number of reported cases will continue to rise as laboratory testing and awareness that campylobacteriosis is a reportable disease in Texas increases.

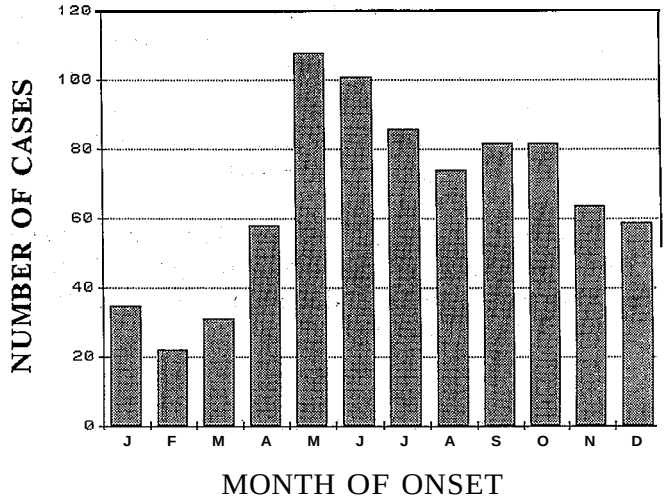
Several age groups experienced incidence rates that exceeded the state rate of 4.8 cases per 100,000 population. Children under 5 years of age comprised 25% of the total cases. The incidence rate for infants under one year was 31.9 cases per 100,000 and for children 1-4 years of age, 11.4 cases per 100,000. These increased rates may reflect true differences in infection rates by age, or may be an artifact of the increased likelihood that physicians culture the stool of young children with diarrhea. Interestingly, adults 20-34 years of age also exceeded the state rate with an incidence of 6.2/100,000. If young children have campylobacteriosis, then their parents (young adults, aged 20-34) may be at increased risk of acquiring the disease from their infected children.

Race/ethnicity was reported for 634 (79%) cases, and included 378 (60%) whites, 188 (30%) Hispanics, 53 (8%) blacks, and 15 (2%) Asians. These percentages are similar to those reported in 1985 and are representative of each group's proportion of the state population. For the second year, more males (56%) than females (44%) were reported as having campylobacteriosis, yet no excess risk for either sex has been reported. Onset of symptoms peaked in May (108 cases), and the greatest percentage (37%) of cases had onset of illness in May, June, and July (see Figure 7). The fewest cases were reported in February (22), and only 11% of all cases occurred from January through March.

Harris County led the state with 234 (29%) cases reported in 1986. The six counties with the largest numbers of reported cases were also the six most populous counties. These counties were responsible for 68% (550) of the cases compared with 47% of the population.

Figure 7

Reported Cases of Campylobacteriosis by Month of Onset, Texas - **1986**



In 212 (26%) cases a specific *Campylobacter* species was identified. *Campylobacter jejuni* was isolated in 98% (207) of these cases, *C. fetus* in three cases, and C. *coli* in two cases.

No outbreaks or deaths due to campylobacteriosis were reported in Texas during 1986.

COCCIDIOIDOMYCOSIS

Reported cases of coccidioidomycosis increased dramatically by 138% from 1985 to 1986. However, the increase was due to aggressive surveillance efforts by the Infectious Diseases Division staff.

Fifty (50) cases of coccidioidomycosis were reported during 1986, in contrast to 21 cases in 1985. In 1986, the Texas Department of Health's Bureau of Laboratories began to provide fungal culture results routinely to the Infectious Diseases Division. Twenty-nine (58%) of the 50 cases of coccidioidomycosis were reported only as a result of these lab reports. In many cases, important surveillance information (i.e. age, ethnicity, city of residence, physician, date of onset) is not specified on laboratory reports requiring time-consuming follow-up by epidemiologists. The remaining 21 cases (equal to the cases reported

in 1985)' were reported by local health departments and through other Texas Department of Health programs. Physicians, hospitals, and laboratory directors need to be made aware that coccidioidomycosis is a reportable disease in Texas, and that local health departments should be notified of all diagnosed cases.

Texas cases in 1986 ranged in age from 4 to 86 years, with a median age of 43 years, the same as in 1985. Males (32) outnumbered females (18) almost 2 to 1 which is consistent with the natural history of the disease. Race/ethnicity was reported on 43 cases and included 24 whites (56%), 18 Hispanics (42%), and one black. Sixteen cases ('32%) were residents of Public Health Region 3/12, a major endemic area of the disease in Texas. Region 7/10, which is outside the endemic area of the state, was the only public health region in Texas which did not report cases of coccidioidomycosis in 1986.

Coccidioidomycosis is generally a dust-borne mycosis, with clinical illness principally resulting from pulmonary infection. In 27 cases, information was available on the source of the diagnostic specimen; 23 (85%) were from the lung, sputum, or bronchial washings.

One death due to coccidioidomycosis was reported in 1986. The deceased was an 80-year-old, white female resident of Ector County, who died in February of disseminated coccidioidomycosis.

DENGUE

Dengue is a mosquito-borne viral disease which produces an acute febrile illness. Approximately 40-70% of dengue infections result in no apparent illness, and less than half have classic dengue symptoms--fever up to 104°F lasting 5-7 days, retro-orbital pain, headache, myalgia, arthralgia, macular rash, and malaise.

The last major outbreak of dengue in the United States occurred in 1922 and 1923 when an estimated 2 million cases occurred through the southern United States. One report stated that a half a million cases were reported in Texas in 1922. However, the official morbidity records for the state indicated just under 41,000 cases.

Dengue activity has since declined with only sporadic activity reported in counties in east and central Texas and along the Gulf Coast. By the late 1940s and early 1950s, dengue infections virtually disappeared in Texas. The last outbreak in the continental United States occurred in Louisiana in 1945 but did not spread into Texas; only 19 cases were reported that year.

Dengue continues to occur endemically in Central America and other areas in and adjacent to the Caribbean. Epidemics have been reported in Puerto Rico, Mexico, Colombia, and El Salvador in recent years. Throughout the 1980s, Mexico has reported upwards of 25,000 cases each year.

During the summer and early fall of 1986, 17 confirmed cases of dengue were reported in Texas. These included 10 indigenous cases--the first to have occurred in Texas since 1980. The additional seven cases were imported into Texas from Mexico. Four patients reported recent travel to Monterrey, less than 100 miles from the Texas border in the Mexican state of Nuevo Leon; two had traveled to Ciudad Victoria and one to Matamoras (directly across the border from Brownsville, Texas). Both Ciudad Victoria and Matamoras are located in the Mexican state of Tamaulipas.

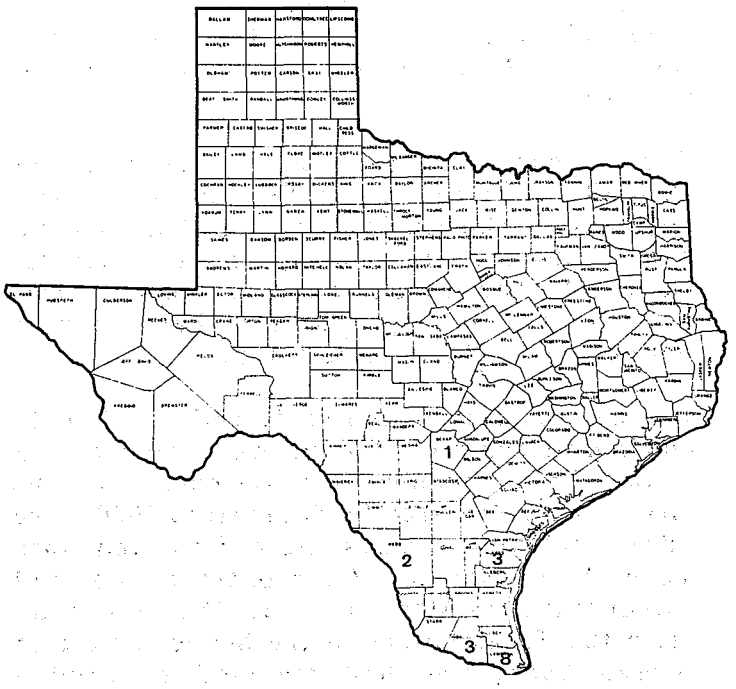
The focus of dengue in Texas in 1986 was in South Texas in the lower Rio Grande Valley. Sixteen of the 17 cases resided within Cameron, Hidalgo, Nueces, and Webb counties. One case of imported dengue resided in Bexar County as illustrated in Figure 8.

Each of the 17 cases was serologically confirmed by the Texas Department of Health Bureau of Laboratories. The Texas Department of Health laboratory was also able to isolate the dengue type 1 virus in acute sera submitted from two patients. The first dengue 1 virus isolation came from a resident of Corpus Christi who had an onset of symptoms on October 21; this patient had no travel outside the Corpus Christi area but did recall numerous, recent mosquito bites. The second dengue 1 virus was isolated from a patient who lived in Harlingen (Cameron County) and who became ill on November 6. This patient had

traveled to Monterrey seven days prior to becoming ill and was considered to have acquired his infection there.

Figure 8

Reported Cases of Dengue **in** Texas
by County of Residence, **1986**

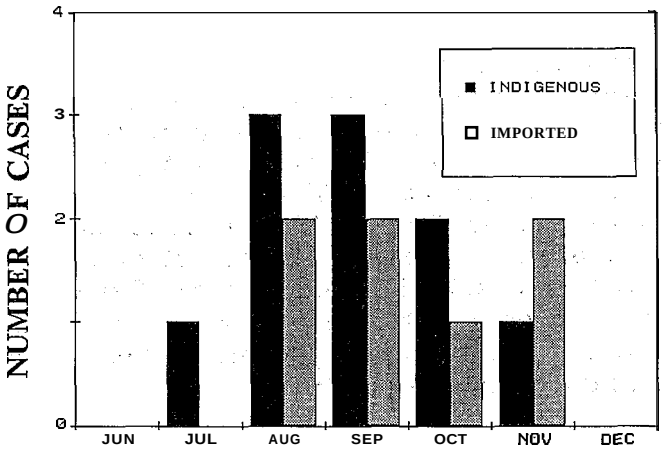


Interestingly, five families were responsible for ten'cases of dengue. The relationships included a father and daughter with onsets three days apart (imported); husband and wife with onsets at approximately the same time' (imported); grandmother and granddaughter, onsets three days apart (indigenous); brother and sister, onsets 30 days apart (indigenous); and a mother and daughter, onsets approximately at the same time (imported). In all, 12 of the 17 cases reported that other family members had also been ill or diagnosed as having dengue. These 12 individuals recalled a total of 25 associated cases. However, some of these family members lived in and were diagnosed in Mexico and are, therefore, not included in Texas morbidity. Serologic confirmation was not available for the other possible cases. Several households reported up to five family members ill with symptoms compatible with dengue.

The dates of onset of the cases ranged from July 7 to November 16, with the majority of cases occurring in August and September (Figure 9). The cases ranged in age from 8-71 years; median age was 38. Eleven of the cases were female; six were male. With the exception of one case, all were Hispanic.

Figure 9

Reported Cases of Dengue in Texas
by Month of Onset, **1986**



MONTH OF ONSET

Symptoms of th'e 17 cases were reported with the following frequencies: fever-100%; headache-82%; body pain-76%; eye pain-580%; joint pain-58%; chills-52%; nausea and vomiting-41%; malaise-23%. As expected, roughly half (8/17), or 47%, experienced a rash; only one patient reported petechiae.

The length of illness was reported for 14 patients and ranged from 4-21 days; average length of illness was 10 days. The shortest reported illness was also the youngest case (8 years old), and the longest illness was a man who had multiple other health problems.

Only five of the 17 cases were hospitalized as a result of their illness. Included among these were the earliest case (onset July 7); the oldest case (also a cancer patient); the only case living outside South Texas (San Antonio); and the only non-Hispanic case, who also had one of the longer durations of illness (13 days).

ENCEPHALITIS

The 191 cases of encephalitis reported in 1986 represented' a 24% increase in the number of cases reported in 1985. The etiologic agent was identified and reported for 80 (42%) of the cases, and 38 cases (20%) were the result of arboviral infections. Six of the 25 encephalitis deaths in 1986 were caused by St. Louis encephalitis virus. Since 1980, arboviruses have caused only sporadic cases of encephalitis.

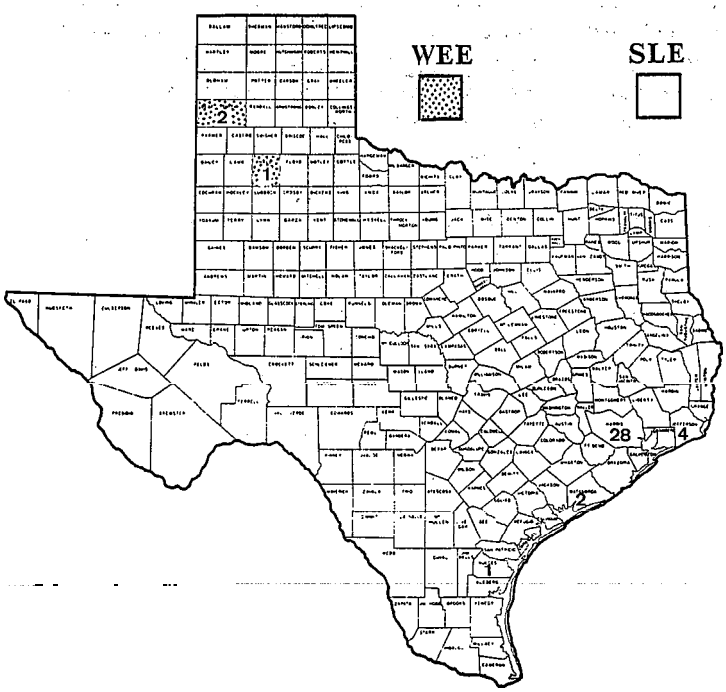
Toxoplasma was the second most commonly identified agent of encephalitis in 1986 and accounted for 17 (9%) of the cases. All of the reported cases due to *Toxoplasnza* were opportunistic infections associated with AIDS. Herpes.simplex virus accounted for 11 cases, chickenpox for 9, herpe's zoster for 3, Jacob-Creutzfeld.virus for.1, and.coxsackie B5 virus for 1.

St. Louis **Encephalitis**

The bulk ('80%) of St. Louis encephalitis (SLE) cases reported 'in 1986 occurred in Harris County (see Figure 10). Within Harris. County, there was a cluster. of 23 cases in Baytown, located on the western ,edge. of the county.

Figure 10

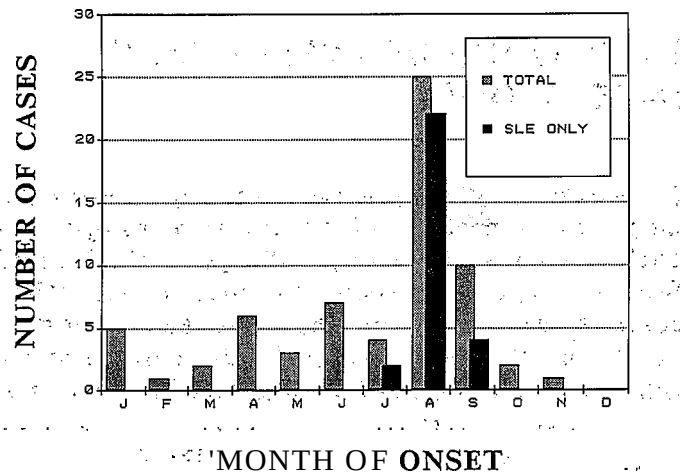
Reported Cases of Arboviral Encephalitis in Texas
by County of 'Residence, 1986'



These cases occurred between the last week of July, and the middle of September. SLE represented 72% of all.encephalitis reported in Harris County July through September 1986 (see Figure 11). Non-Harris .County cases began later; the Jefferson County ,cases occurred in August and September, Matagorda County cases in late September, and the Nueces County case in October.

Figure 11

Reported Cases of **Encephalitis** in.**Harris County** Total **Cases** and **St.** Louis **Encephalitis Compared** by Month of Onset, 1986



The" cases of SLE in 1986 .ranged in age from 10 to 92 years; median age was 52 years. 'The greates't number of cases (15, 'or 43%) was reported in individuals 60 years of age and older. The age distribution of cases in 1986 was 'not significantly different from 1980 when 80 cases occurred in Texas.

Five of the six SLE deaths occurred during the, Baytown outbreak, and all of the deaths were in persons 59 years of age and older. In contrast to 1980, when only one SLE death occurred (for a case-fatality ratio of 1%), the case-fatality ratio in 1986 was 17%. The 1980 death resulted from pneumonia which the patient developed while in a coma. However, in 1986, infection with the SLE virus contributed directly to each of the deaths. In two cases, the diagnosis of SLE was made post mortem.

Western Equine Encephalitis

Three cases of western equine encephalitis (WEE) were reported within one week in residents of rural Deaf Smith County and Hale County. The two cases from Deaf Smith County occurred in infants less than six weeks of age who experienced onset of illness July 30 and August 1. The third case, a teenager from Hale County, had onset of illness the week of August 3. All of the individuals recovered from the acute illness; however, long-term sequelae for the infants has yet to be determined. WEE virus was isolated from mosquitoes collected on the property where one of the infants lived.

HAEMOPHILUS INFLUENZAE INFECTIONS

Haemophilus influenzae type b (Hib) remains the most common cause of bacterial meningitis in children under five years of age in the United States. The organism can also cause other serious invasive illnesses. The most common systemic infections caused by *H. influenzae* are septicemia, pneumonia, epiglottitis, cellulitis, and septic arthritis; osteomyelitis and pericarditis are rare manifestations of *H. influenzae*. A vaccine to prevent systemic Hib infections was licensed for use in the United States in April 1985, and the Advisory Committee on Immunization Practices (ACIP) now recommends that all children be vaccinated at 24 months of age. Only through continued reporting and surveillance of *H. influenzae* infections in Texas can the impact of the vaccine be studied.

In September 1986, the rules and regulations for the control of communicable diseases were amended making all systemic *Haemophilus influenzae* infections reportable in Texas. Prior to this Board of Health action, only meningitis due to H. *influenzae* was required to be reported to the Texas Department of Health.

In 1986, a total of 647 *H. influenzae* infections was reported to the Infectious Diseases Division, and meningitis was the most, frequently reported infection (Table 4).

Table 4

Reported Cases of Haemophilus influenzae Infections Texas, **1986**

Type of infection	# Cases	Percent of Total
Meningitis	493	76.2 %
Pneumonia	87	13.4
Septicemia	34	5.3
Cellulitis	15	2.3
Epiglottitis	11	1.7
Septic Arthritis	7	1.1
TOTAL INFECTIONS	647	100.0 %

Children under the age of 5 years accounted for 94% (461/493) of the *H. influenzae* meningitis cases and 81% of all *H. influenzae* infections. Infants under the age of one year experienced the highest incidence rate of *H. influenzae* disease in Texas (111 cases per 100,000 population); in children 1-4 years of age, this rate dropped to 20 cases per 100,000.

Sixty-seven percent (23/34) of the septicemia cases also occurred among children under five years of age. Almost half (47%) of the cellulitis cases were reported in children 1-4 years of age; five cases were infants between six and ten months of age. Nine of the 11 cases (82%) of epiglottitis were reported in children in the 1-4 year age group. Six of the seven cases of septic arthritis reported in Texas in 1986 were under the age of three years; one case was reported in a 50-year-old female. *H. influenzae* pneumonia was more common among older adults as 73% (60/87) of the cases were over 55 years of age.

Secondary disease is illness which occurs from one to 60 days after contact with a child who has an *H. influenzae* infection. Because *H. influenzae* infections are so common in young children, the risk of secondary disease among children exposed to a primary case in a child-care facility continues to be a matter of concern to health professionals. However, less than *5%* of all invasive *H. influenzae* disease result from exposure in a child-care facility. Secondary attack rates for household contacts have been estimated to be higher than that for

child-care contacts, and in Texas, secondary disease has been more frequently reported among household contacts than among children attending child-care centers.

In 1986, only one episode of secondary disease in a child-care facility was reported to the Infectious Diseases Division. This involved a 9-month-old infant diagnosed with septic arthritis; H. *influenzae* was isolated in joint fluid taken from his left elbow. Fifty-one days later, a 19-month old child attending the same facility was diagnosed as having H. *influenzae* meningitis and septicemia. After this second case occurred, classroom contacts' to these children received rifampin prophylaxis.

Two episodes of secondary disease among household contacts were reported to the Infectious Diseases Division during 1986. These included a 2-month-old with meningitis whose 16-month-old brother developed pneumonia 10 days later and infant cousins who were diagnosed with meningitis within seven days of each other. Two additional possible episodes of secondary disease among household contacts included sisters, 20 months and 2 months of age who developed meningitis on consecutive days and an 11-month-old infant who died following a sudden onset of meningitis; his 2-year-old sister became ill the following day with fever, vomiting, otitis media, and a diagnosis of possible sepsis.

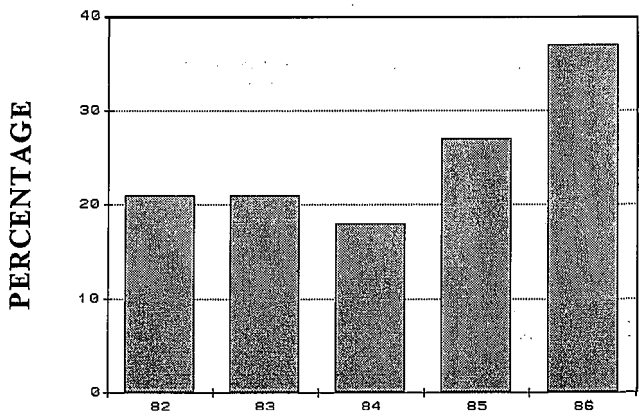
There were several other instances in which siblings or other household members of diagnosed H. *influenzne* cases were reported to have "similar" illnesses. However, complete information was not available to determine whether these cases were in fact H. *influenzae* infections.

The ACIP currently recommends that in any household in which a case of invasive H. *influenzae* disease has occurred and in which another child under the age of 4 years resides, all members of the household, including adults, and the index case should receive rifampin prophylaxis. Prophylaxis should strongly be considered for all staff and children, regardless of age, in the child-care classroom in which a case of systemic Hib disease has occurred, and in which one or more children under 2 years of age have been exposed.

Resistance of H. *influenzae* to ampicillin or

Figure 12

Percentage of Penicillin-Resistant Haemophilus influenzae in Texas, 1982-1986



chloramphenicol is of growing concern to medical practitioners. Ampicillin-resistant isolates of H. *iizflueizzae* were first recognized in 1974 and have since become increasingly prevalent. In 1976, a national survey of pediatric medical facilities found the prevalence of ampicillin-resistant H. *infltienzne* isolates from blood or CSF cultures to be 4.5%. By 1981, ampicillin-resistance ratios of 17% were reported. Texas data on this trend are available since 1982 from the Infectious Disease Division's surveillance of reported H. *iizflueizzae* infections and are presented in Figure 12. A significant increase in the percentage of ampicillin-resistant organisms was noted in 1986. Results of antibiotic sensitivity tests in 1986 indicated that: 83/224 (37%) were resistant to ampicillin, 3/33 (9%) to sulfadiazine, 3/179 (2%) to chloramphenicol, and 0/45 (0%) to rifampin. Three of the isolates tested for rifampin showed intermediate sensitivity.

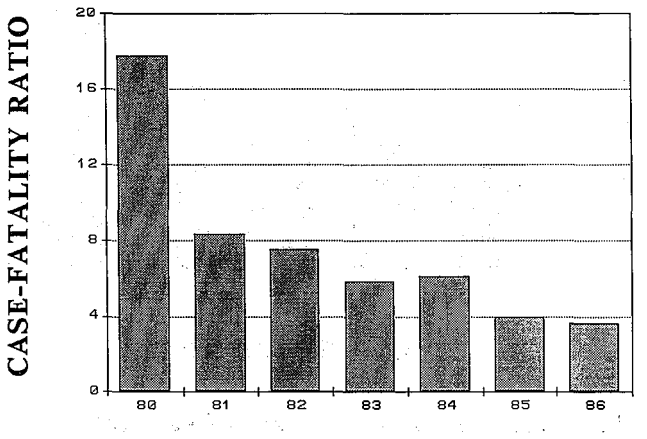
Twenty-three deaths due to H. *irzfluertzae* infections were reported in 1986 resulting in a case-fatality ratio of 3.6%. This ratio has steadily declined since surveillance of H. *influenzae* in Texas began, most likely reflecting improved reporting of non-fatal cases (Figure 13).

'Most (70%) deaths occurred among infants under one year of age; this age group experienced a case-fatality ratio of 5.4% (16/296). Six deaths were reported among

children 1-4 years of age for a case-fatality ratio of 2.6%. The remaining death was a 76-year old man who died from pneumonia.

Figure 13

Case-Fatality Ratios of Haemonhilus influenzae Infections Texas, 1980-1986



HISTOPLASMOSIS

Histoplasmosis was added to the list of reportable diseases in July 1984; therefore, 1986 represents only the second full year' of reporting of the disease in Texas. In 1986, 77 cases of the disease were reported statewide. The majority (52%) of cases were opportunistic infections associated with a diagnosis of acquired immune deficiency syndrome (AIDS); 40 of the 77 cases were AIDS patients. In 1985, 39% (17/44) of the reported cases of histoplasmosis were AIDS-related.

Twenty-one (21) deaths due to histoplasmosis were reported in Texas in 1986 for an overall case-fatality ratio of 27%. Sixteen of the deaths occurred in AIDS patients resulting in a case-fatality ratio of 40% in these patients. One death was reported in a patient who also had leukemia, and four deaths were reported in patients without another reported underlying condition.

One of the 11 female cases (9%) was related to AIDS as were 39 (59%) of the male cases. Eighty-seven percent of the AIDS-related cases

Table 5

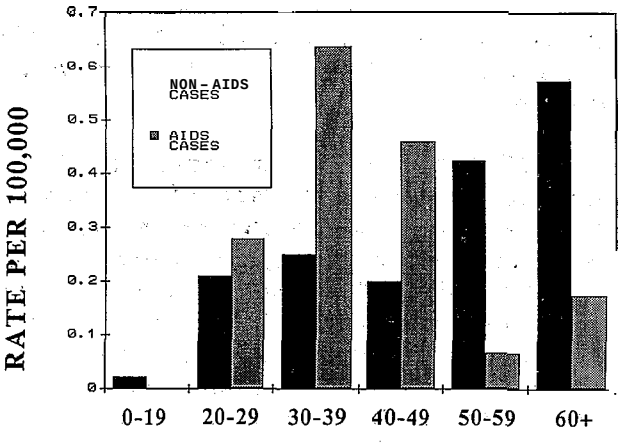
Reported Cases of Histoplasmosis Associated with AIDS . by Age and Sex, Texas - **1986**

Age in Years	Male	Female	Total
0-19	0	1	1
20-29	6	0	6
30-39	4	3	7
40-49	4	0	4
50-59	5	1	6
60+	8	5	13
TOTAL	27	10	37

were 25-47 years of age. Excluding the AIDS-related cases, the age distribution between male and female cases was similar. There was no case under the age of 15 years. There is a trend toward increasing incidence as age increases, but the absolute number of cases in any age group is small until the age of 60 (Table 5). The incidence rates of AIDS-related histoplasmosis and non AIDS-related cases by age group are compared in Figure 14.

Figure 14

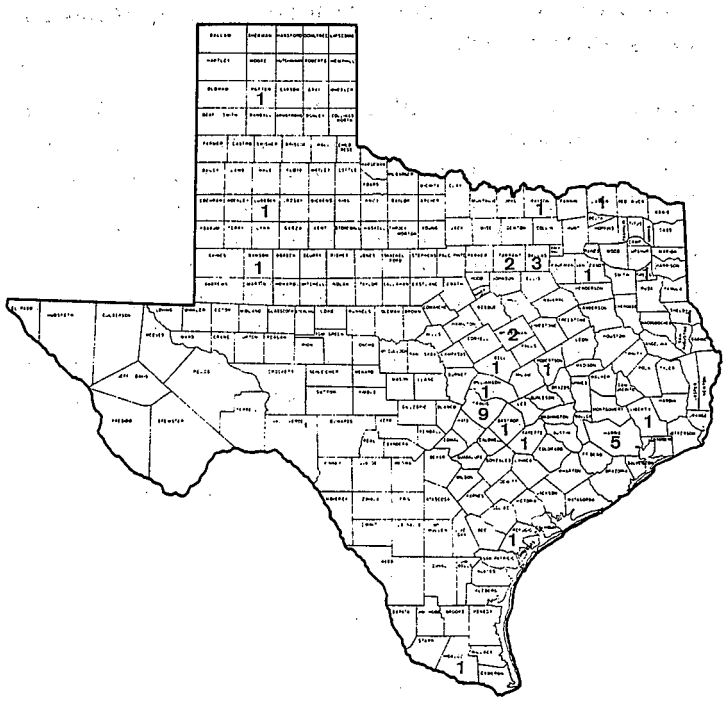
Distribution of AIDS-related and Non AIDS-related Histoplasmosis Cases in Texas by Age Group, 1986



Although cases of histoplasmosis occur in the South Plains and Panhandle regions of the state, the majority of cases are reported from central and east Texas, whether or not cases are associated with AIDS (Figure 15). Nine of the fourteen cases in the Dallas-Fort Worth area in 1986 were associated with AIDS as were 22 of the 27 in Harris County, but none of the nine cases from Travis County were associated with AIDS. Three of the Travis County cases had a common exposure, which is unusual. They were archeologists engaged in a site review in East Texas. Their work entailed sifting large quantities of soil for artifacts prior to use of the land for mining. Before this project, the area was heavily wooded, and at the time of the investigation, the remaining trees provided roosts for large numbers of birds. None of the other archeologists at the site became ill, and none of the soil samples produced growth of *Histoplasma capsulatum* in hamsters. Other than this cluster, six cases occurred in Travis County compared to three in the Dallas/Fort Worth area and five in Harris County that were not AIDS-related; this may reflect better reporting in Travis County.

Figure 15

Reported Cases of Non-AIDS Related Histoplasmosis in Texas by County of Residence, 1986



INFLUENZA AND FLU-LIKE ILLNESSES

Epidemics of influenza A or influenza B occur every year in the United States. A total of 83,324 influenza cases was reported in Texas in 1986. Influenza B viruses circulated throughout the state from January through March 1986 with the highest number of influenza cases reported in March (23,782) and February (15,641). Influenza A(H1N1) viruses emerged in Texas in October 1986 and caused widespread illness by December 1986.

Figure 16

Reported Cases of Influenza in Texas by Month of Report, **1983-1986**

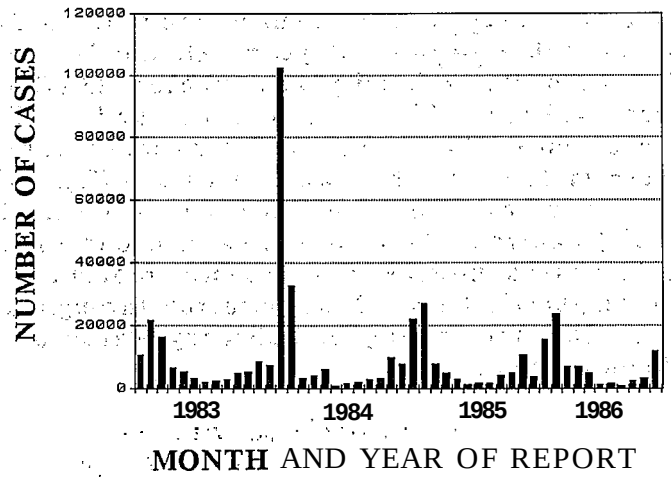


Figure 16 illustrates the number of reported influenza cases by year and month from 1983 through 1986. February or March was the peak month of influenza virus activity in each of the four years.. Influenza A(H3N2) viruses circulated in Texas in 1983 and 1985. Influenza B and influenza A(H1N1) viruses circulated in 1984 and 1986. The peak number of reported influenza cases (102,000) occurred in February 1984, when an influenza B/Russia virus and influenza A(H1N1)/Chile virus circulated at the same time.

LEGIONELLOSIS

Legionellosis is an acute bacterial disease with two distinct clinical patterns "Legionnaires' disease" and "Pontiac fever." In 1986, 41 cases of Legionnaires' disease were reported in Texas, reflecting a 41% increase over 1985. Diagnoses were based on a diagnostic rise in IFA titer between acute and convalescent sera (54% of the cases), isolation of the organism (29%), or demonstration of 'the organism by direct IF stain (17%). All cases occurred sporadically, i.e., no clusters of cases were documented.

Serotypes of the Legionella organism were reported for 11 cases; seven were L. *pneumophila*, and four were L. *micdadei*. No cases of Pontiac fever have been reported in Texas since reporting of legionellosis began in 1984; therefore, statistics in this report refer to Legionnaires' disease only.

Ages of cases in 1986 ranged from 13 to 81 years with a mean of 56 years. Of the 32 cases for whom race/ethnicity was reported, 23 (72%) were white, 6 (19%) were Hispanic, and 3 (9%) were black. More than twice as many cases were male (73%) than were female (27%). Of the 28 cases whose outcome was known, 12 (43%) expired. Most of the cases occurred in urban areas, possibly due to more frequent use of diagnostic tests. Cases occurred throughout the year with peaks in February-March and August-October.

Known risk factors associated with legionellosis included smoking cigarettes in 10 of 24 cases (42%), use of corticosteroids in 8 of 25 cases (32%), and cancer in 8 of 28 cases (29%). Two of the legionellosis patients diagnosed with cancer also had AIDS.

Three cases were potentially hospital-acquired because their illnesses began from three days to six weeks after their date of admission. Reasons for initial hospitalization in these three patients included cardiac transplant, a myocardial infarction in a patient with systemic lupus erytheniatosus, and hematuria. L. *pneumophila* was isolated from all three patients.

LEPTOSPIROSIS

Reported cases of leptospirosis during 1986 demonstrated both similarities and differences to cases reported in 1985. As in 1985, six cases were reported in 1986. Both in 1985 and 1986, all cases were male, and in each year five were white and one was black. In contrast to 1985, there were no clusters of cases reported in 1986. Whereas exposure to rodents (rats and squirrels) was reported as the likely source of infection in five cases during 1985, no case specifically reported rodents among potential exposures in 1986.

Leptospira organisms have been identified in over 100 species of domestic and wild animals, reptiles, and amphibians. Leptospira are excreted in the urine of infected animals and survive well in moist soil and water. Infection may follow exposure of skin or mucous membranes to Leptospira directly or in contaminated water. Asymptomatic infections occur in both man and animals.

Two cases, a 50-year-old resident of Tom Green County and a 23-year-old Hunt County resident, had occupational exposures to cattle. The Tom Green County case worked at a livestock auction barn in San Angelo. The Hunt County case was a dairy farmer who had cows ill with symptoms compatible with leptospirosis, including mastitis and abortions. Leptospirosis had been reportedly diagnosed in cattle in the area.

Exposure to bodies of fresh water was reported in two cases. A 25-year-old Dallas County resident had vacationed on a houseboat and swum in a lake in Arizona 21 days prior to onset of symptoms. A 43-year-old resident of Henderson County may have acquired his infection while fishing along a local river ten days before his onset of symptoms. He reported cattle in the vicinity of his fishing spot which could have contaminated the river with infected urine.

In the case of a 34-year-old Rockwall County resident, exposure to the urine of a trapped raccoon two weeks prior to onset of his illness was the only reported potential exposure. The case was a football coach who did not routinely come in contact with wild animals. No source of infection beyond contact with household

pets (cats and dogs) was indicated for a 65-year-old resident of rural Limestone County.

MALARIA

Eighty-four (84) malaria cases were reported in Texas in 1986, a 6% decrease from the 89 cases reported in 1985. The cases ranged in age from one to 56 years, and 62% of the cases were male.

The majority (55%) of the cases were recent immigrants or visitors to the United States. Thirty-eight cases were U.S. citizens who were exposed to malaria while traveling outside the country. Three countries were the site of exposure for over 55% of the cases; 21 cases had traveled to India, 17 to Nigeria, and 9 to Mexico.

The four malarial parasites of humans are Plasnzodiunz falciparunz, P. malariae, P. ovale, and P. vivax. In 1986, 41 cases were confirmed a P. vivax, 24 as P. *falciparum*, 6 as P. nzalariae, and 1 P. *ovale*. One case had a mixed infection, and the species was not determined for the 11 remaining cases.

MENINGOCOCCAL INFECTIONS

The incidence rate of meningococcal infections in Texas remained below 1.0 case per 100,000 population for the second year; in 1986, this rate was 0.8 cases per 100,000, the result of 138 cases reported statewide. This number differs by only six cases from the decade low of 132 cases reported in 1985. Consistent with the decline in actual cases reported since the peak year of 1981, the case-fatality ratio has also been declining. In 1986, there were only eight deaths for a case-fatality ratio of 5.8%. The deaths occurred in persons 20 years of age or less; in fact, six of the deaths (75%) were children under four years of age. The incidence rates for meningococcal infections continued to be highest in infants under one year of age and in children 1-4 years of age; these children accounted for over half (56%) of the meningococcal infections reported in Texas in 1986. The age-specific incidence rate for infants under one year was 15 cases per 100,000 and 3 cases for children 1-4 years of age. The case-fatality ratios in these groups were 7% and 8%, respectively.

Serotype of the organism was reported on 68 (49%) of the cases in 1986. This distribution is similar to that of recent years, and type B remained the most common serotype; 73% were type B, 21% type C, 3% type W135, and 3% type Y. In 1986, there were no reports of type A organisms. The source of the isolate was available for 97 (66%) of the cases: cerebrospinal fluid (CSF)-61%; blood-26%; blood and CSF-9%; urine-2%; joint fluid-1%; and pleural fluid-1%.

The geographic distribution of Texas cases in 1986 was also similar to previous years. Dallas and Travis counties have consistently experienced rates higher than the state rate; both counties reported incidence rates of 1.5 cases per 100,000 population in 1986. Again, this may be the result of better reporting as there are only five hospitals in Travis County, and reporting is thought to be complete. Incidence rates in the other major metropolitan areas ranged from 0.6 cases in Harris County to 0.8 in Bexar County and 1.1 in Tarrant County. The increased incidence experienced by Bexar County in 1986 (up from 0.09 in 1985) was the result of improvements in surveillance and reporting procedures.

OCCUPATIONAL DISEASES

ACUTE OCCUPATIONAL PESTICIDE POISONING

Two cases of acute occupational pesticide poisoning were reported to the Texas Department of Health during 1986. Based on information provided to the Environmental Epidemiology Division from other state agencies, the two reports represent significant underreporting of this occupational health problem.

The first reported incident occurred in the Texas Panhandle in June and involved a park maintenance worker who was spraying Roundup®, an herbicide. He unintentionally sprayed himself with the compound and

developed a rash on his face and hands.

The second incident took place on a ranch in West Texas in August and involved a maintenance worker. While opening a can of Phosdrin (an organophosphate insecticide), he inadvertantly splashed some of the contents on his face and also inhaled the vapors. He developed signs and symptoms of organophospate poisoning: blurred vision, headache, pinpoint pupils, diaphoresis, weakness, abdominal pain, nausea, and vomiting. The worker was hospitalized for three days and treated with atropine.

ASBESTOSIS AND SILICOSIS

The surveillance system for two reportable pneumoconioses, asbestosis and silicosis, continued to be developed and refined in 1986. Reports of newly diagnosed cases are being collected and filed pending completion of the reporting system. When finalized, staff epidemiologists will obtain additional exposure and clinical information to complete each report.

Since the enactment of the 'Occupational Disease Reporting Act in September 1985, 1719 cases of confirmed or suspected asbestosis (either pulmonary, pleural, or both) were reported. During that same time, 32 newly diagnosed cases of silicosis were reported. Preliminary review of case information indicates a predominance of cases in the highly industrialized areas of the Texas Gulf Coast, though reports have been received from all regions of the state. Almost all of the cases are male.

A more In-depth analysis of these pneumoconioses will be available when the surveillance system is finalized.

ELEVATED BLOOD LEAD LEVELS

In 1986, 638 reports of elevated blood lead levels (lead levels equal to or greater than 40 micrograms per deciliter of blood) were received by TDH. This total includes multiple reports on many individuals, because the Occupational Safety and Health Administration (OSHA) requires that tests be repeated'at two-month intervals if air lead levels exceed certain specified limits. Table 6 shows the distribution of these reports by public health region in Texas. The largest number of reports' came from companies that manufacture batteries. Other types of companies that contributed significantly to the number of elevated blood lead' reports were: radiator repair shops; manufacturers of lead products; and steelworks and rolling and finishing mills. Six individuals with elevated blood lead levels reported symptoms of lead poisoning in 1986. Symptoms ranged from mild' and nonspecific such as headache, dizziness, and fatigue to serious peripheral neuropathy.

Table 6

Elevated Blood Lead Level Reports
by Public Health Region in Texas, **1986**

Public Health Region	Number of Reports	Number of Companies
1	5	1
2	3	1
3/12	39	4
4	2	1
5	549	10
6	0	0
7/10	10	2
8	0	0
9	5	1
11	25	10
TOTAL	**638**	**30**

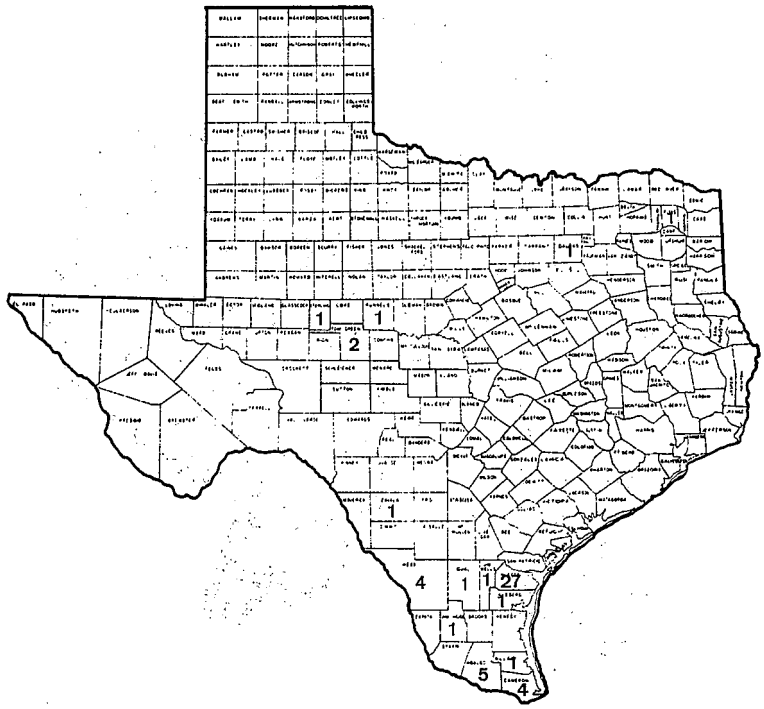
Although many workers in Texas are exposed to lead in the workplace, the technology is available to ensure that exposure is within acceptable limits for all employees. (In the early 1970s, 'the National Institute of Occupational Safety and Health estimated that approximately 86,681 workers in Texas were exposed to lead in the workplace.) Accordingly, in an effort to protect the health of workers in Texas, TDH prioritizes reports of elevated blood lead on the basis of lead level and the presence of symptoms. Reports are considered high priority (i.e. the health of the worker may be adversely affected) if blood lead levels are greater than 70 mcg/dl, the average blood lead level over a six-month period for a given worker is over 50 mcg/dl, or

symptoms of lead poisoning are reported. Companies with workers in the categories listed above are inspected by an industrial hygienist, who measures lead exposure and makes specific recommendations concerning methods for reducing exposure. In 1986, five companies received an industrial hygiene inspection through the Occupational Safety Program at the Texas Department of Health or through the Houston Department of Health and Human Services.

Attempts to improve reporting of elevated blood lead levels are continuing and because of these efforts, it is anticipated that more reports will be received in 1987 than in 1986. This will provide the Texas Department of Health with a greater opportunity to identify companies with lead exposure problems and to work with these companies in reducing exposure.

Figure 17

Reported Cases of Murine Typhus in Texas
by County of Residence, 1986



RICKETTSIAL DISEASES

MURINE TYPHUS

Fifty-two cases of murine typhus were reported in Texas in 1986. This was the highest number of cases reported since 1980 when 61 cases were reported. The counties of residence of the cases in 1986 are presented in Figure 17, and as in previous years, the majority of cases resided in South Texas. The 27 cases which occurred in Nueces County in 1986 represented the highest number reported there since 1946 when 59 cases occurred.

Cases ranged from 4 to 88 years of age. The majority (63%) of the cases were 30 years of age or older, and the majority (65%) of the cases were Hispanic.

Cases had onset of symptoms throughout the year, but 48% occurred in April, May, and June. Clinical symptoms were noted with the following frequencies for the 52 cases: fever, 100%; headache, 87%; malaise, 59%; rash, 54%; and myalgia, 46%. The associated rash was most frequently observed on the trunk (95%), followed by the arms (52%), leg (48%), and face (14%). The rash appeared, on the average, five days after onset of fever. A 67-year-old Dallas County man died from murine typhus, resulting in a case-fatality ratio of 2%.

Since 1980, 277 cases of murine typhus have been reported in Texas. Figure 18 illustrates the average annual incidence rate per one million population for individual counties throughout the state. Counties with the highest annual incidence rates are concentrated in South and West Central Texas. The mean annual incidence rate for the state was 2.8 cases per one million population.

ROCKY MOUNTAIN SPOTTED FEVER

Twenty-one cases of Rocky Mountain spotted fever (RMSF) were reported in Texas in 1986. This was a decrease of 36% from the 33 cases reported in 1985. As in 1985, no death due to RMSF was reported in Texas in 1986.

The annual number of RMSF cases in Texas has changed dramatically during the last ten years, as illustrated in Figure 19. From 1979 to 1983, Texas experienced an almost four-fold increase in the number of reported RMSF cases; since 1983 a five-fold decrease has occurred.

Figure 18

Average Annual Incidence Rate of Murine Typhus by County of Residence per **1** Million Population Texas, **1980-1986**

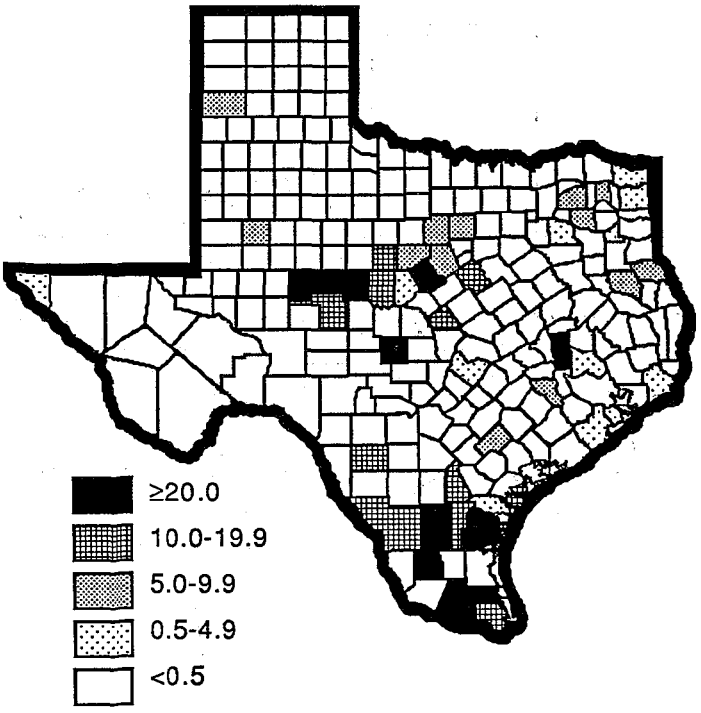
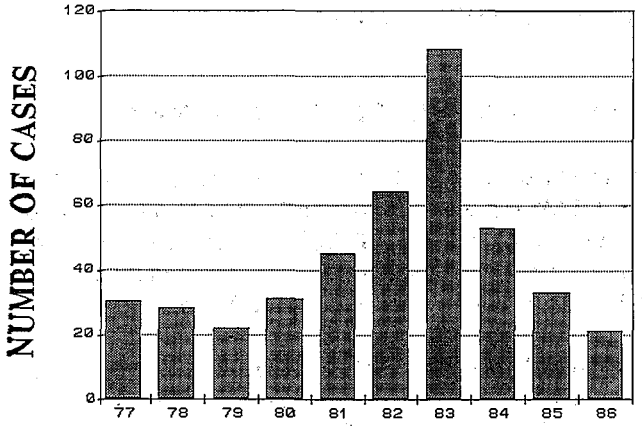


Figure 19

Reported Cases of Rocky Mountain Spotted Fever in Texas by Year of Report, 1977-1986



The 21 cases in 1986 ranged in age from 11 months to 65 years with a median of 26 years. Sixty-seven percent of the cases were males. RMSF is a bacterial infection caused by Rickettsia rickettsii and is transmitted to man either through the bite of an infected tick or by contamination of the skin with crushed tissues or feces of infected ticks. RMSF cases' occur during the spring and summer months, when tick activity is greatest. Eighty-six percent of the Texas cases in 1986 had onset of symptoms in April through September.

Historically, RMSF fever occurs in the northeast and north central counties of Texas. The majority of cases in 1986 also resided in these areas. The occurrence of four cases in Orange County was uncharacteristic. Prior to 1986, no cases of RMSF fever had been reported from Orange County in over 20 years.

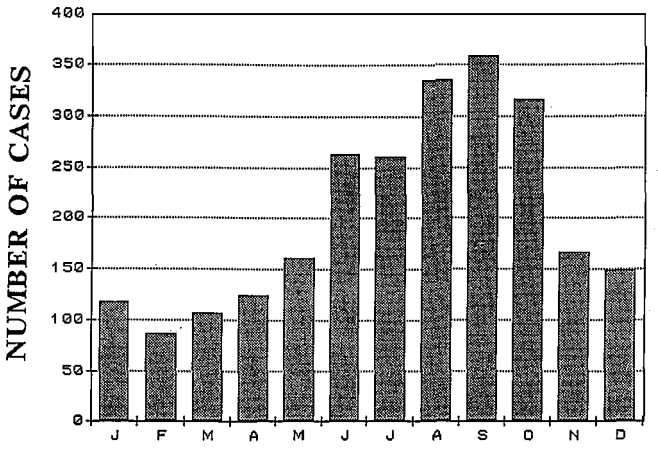
SALMONELLOSIS

In 1986, 2445 Salmonella infections (exclusive of S. typhi) were reported to the Texas Department of Health resulting in an incidence rate of 14.7 cases per 100,000 population. The incidence peaked during the warmer months (June-October) as illustrated in Figure 20. Cases were fairly evenly distributed between males and females with 52% and 48% of the cases, respectively. Children under five years of age accounted for 43% of the cases. The incidence rate of salmonellosis in infants under the age of one year was 226.4 cases per 100,000 and 40.5 in children 1-4 years of age. All other age groups experienced rates less than that of the state rate. Race/ethnicity was reported on 1723 cases, and the incidence rates for these groups were 16.1 cases per 100,000 population for Hispanics, 10.2 for blacks, and 8.4 for whites.

Three deaths due to salmonellosis were reported in 1986. Ages of these cases were 58, 61, and 84 years. All were male and had *Salmonella* isolated from their blood. Only one isolate was serotyped, and it was *S.* enteritidis. Sixty-nine case reports indicated that Salmonella was isolated' from specimens other than stool. These specimens included blood (36 cases), urine (31 cases), cerebrospinal fluid (I case), and a bronchial washing (1 case).

Figure 20

Reported Cases of Salmonellosis in Texas by Month of Onset, **1986**



Serotyping was completed on 1,596 (65%) of the reported *Salmonella* isolates, and 79 serotypes were identified. The ten most frequently isolated serotypes are listed in Table 7.

Three foodborne outbreaks caused by salmonellosis were reported in Texas in 1986. The first occurred in March and was traced to a restaurant in Garland (Dallas County), At least five patrons of the restaurant developed salmonellosis caused by S. *blockley;* three patients required hospitalization. All five patrons had eaten a Hungarian salad prepared by a chef who later admitted to having gastroenteritis a few days before the patrons became ill. A stool specimen from the chef and a specimen of the salad both grew *S. blockley.* This outbreak was unusual in that the source of most *Salmonella* outbreaks is not usually a foodhandler, but rather a food which has not been cooked or stored properly.

Table 7

Reported Salmonella Serotypes
Texas - **1986**

Serotype (Species enteritidis)	# of Isolates	% of Isolates
typhimurium	368	23 %
newport	175	11
heidelberg	133	8
Group B	90	6
javiana	78	5
enteritidis	63	4
Group C	63	4
montevideo	39	2
infantis	47	3
agona	46	3
69 other serotypes	494	31
TOTAL	1596	100 %

The second foodborne outbreak occurred in Lubbock during June. At least 25 of 40 individuals developed gastroenteritis following a wedding reception. *Salmonella* group B was isolated from four attendees. One of the isolates was identified as *S. typhimurium.* The bride's mother, who prepared all of the food for the reception in her home, admitted that her refrigerator had not been working well for some time. Upon investigation, the ambient air temperature in the refrigerator was found to be 55°F.

The third outbreak involved students from outside Texas who attended a college football game in Dallas. A number of these students became ill and were diagnosed as having salmonellosis after eating together in a Mexican food restaurant. No further information on the source of these illnesses could be obtained.

SEXUALLY TRANSMITTED DISEASES

In 1986, 63,376 cases of gonorrhea and 9,408 cases of syphilis (all stages) were reported in Texas. These figures represented a 5% decrease in gonorrhea and a 12% decrease in syphilis from 1985 and reflected only the incidence of sexually transmitted diseases in the civilian population of the state.

GONORRHEA

For the first time since 1970, the incidence rate of gonorrhea dropped below 400 cases per 100,000 population. This rate peaked at 683.4 in 1978 and has steadily declined to 318.3 cases in 1986 (see Figure 21). Texas ranked 15th in

Figure 21

Reported Cases of Gonorrhea in Texas per 100,000 Population, 1970-1986

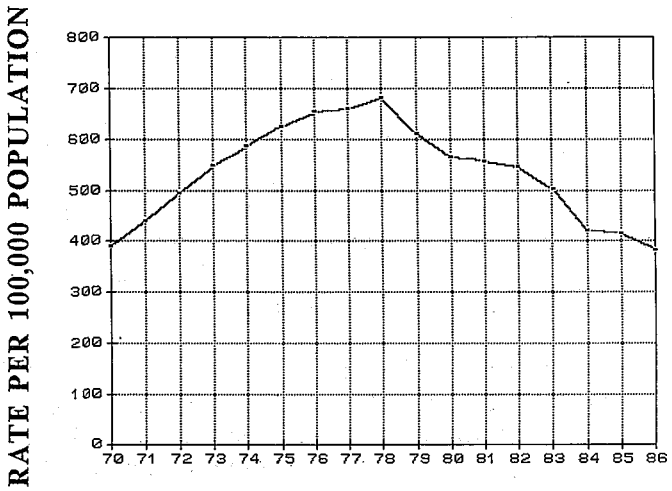
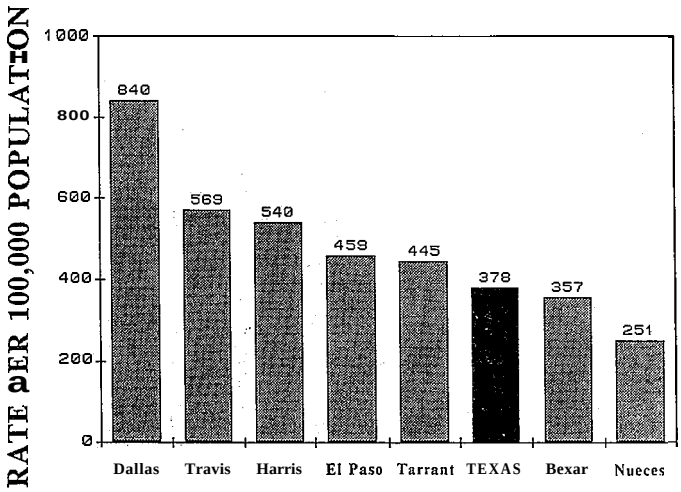


Figure 22

Reported Cases of Gonorrhea per 100,000 Population in Selected Counties in Texas, 1986



the nation in 1986 in gonorrhea incidence. The seven major metropolitan counties (Bexar, Dallas, El Paso, Harris, Nueces, Tarrant, and Travis) which comprise almost half (49%) the Texas population reported 72% of the gonorrhea cases in 1986, and a comparison of rates in these individual counties is illustrated in Figure 22. Young adults 15-29 years of age accounted for 82% (52,152) of the gonorrhea cases statewide. The age-specific incidence rate for this age group was 1238 cases per 100,000, 220% higher than that of the state as a whole. These incidence rates for various age groups are illustrated in Figure 23.

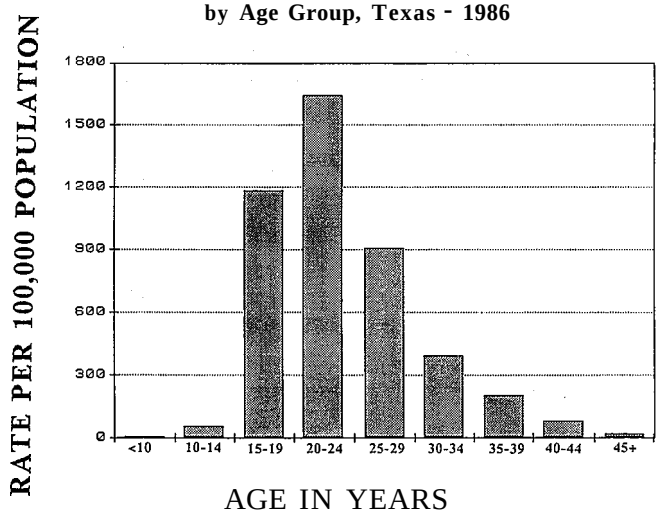
Resistant Gonorrhea

During 1986, 408 cases of penicillinase-producing *Neiserria gonorrhoeae* (PPNG) were reported in Texas, doubling the number of cases reported in 1985. This increase was the result of increased surveillance by local health department and affiliated laboratories in Texas. Over 90% of the PPNG in 1986 was reported in five major metropolitan areas: Houston (68%), El Paso (12%), Austin (7%), Dallas (3%), and San Antonio (3%).

In addition, 357 cases of chromosomally mediated resistant *N. gonorrhoeae* (CMRNG) were reported in Texas, during 1986. CMRNG was first reported in Texas in August 1985 in Dallas and in San Antonio. This strain of gonorrhea is the result of naturally occurring genetic mutations coupled with antibiotic exposure which eliminates sensitive organisms. In contrast, only 20 cases were reported in Texas during 1985. The dramatic increase noted in 1986 was the result of widespread surveillance by laboratories throughout the state and informational materials distributed to private and public health care providers. Over half the CMRNG cases occurred in Houston (54%); Dallas reported 17% of the cases.

Figure 23

Reported Cases of Gonorrhea per 100,000 Population by Age Group, Texas - 1986



Gonococcal Pelvic Inflammatory Disease

Gonococcal pelvic inflammatory disease (GPID) is the most common complication of gonorrhea in women. As a result of GPID, many women experience ectopic pregnancy, sterility, and other recurrent infections. A total of 2,165 cases of GPID were reported in 1986, a decrease of only 2% from the 2,202 cases reported in 1985. An aggressive intervention and follow-up program has been established between local health department STD clinics and hospitals because most GPID patients are seen in hospital emergency rooms.

SYPHILIS

There were 9,408 cases of syphilis reported statewide in 1986. Of this total, 3967 cases were reported as primary or secondary (P&S) syphilis, a decrease of 14% from cases reported in 1985; likewise, the incidence rate decreased to 23.7 cases per 100,000 population in 1986. Houston and Dallas reported the largest decreases with 25% and 15%, respectively. Again, the seven major metropolitan areas of the state reported 73% of the P&S cases. As with gonorrhea, the majority (63%) of cases occurred among young adults 15-29 years of age.

Reported cases of early latent syphilis (less than one year's duration and no signs or symptoms present) also decreased by 14% in 1986; a total of 3,773 cases was reported statewide. The geographic and age distribution of early latent cases in Texas was similar to the P&S cases.

Congenital Syphilis

During 1986, Texas reported 61 cases of congenital syphilis in children less than one year of age, resulting in a 39% decrease from the 96 cases reported in 1985. Seventy-five percent of the cases were reported from the seven major metropolitan areas. Dallas and Houston reported 17 and 14 cases, respectively, and were responsible for just over half the total. Houston experienced a 50% decrease in cases from the 1985 level, whereas Dallas experienced a 21% increase in 1986. Public Health Regions 1 and 2 were the only regions that did not report congenital syphilis during 1986.

CHANCROID

Chancroid is a bacterial infection caused by the organism *Haemophilus ducreyi,* and infection is characterized by one or more ulcerative lesions usually on the genitals. Except for isolated outbreaks, chancroid is relatively uncommon in most parts of the United States. In recent years, very few cases have been reported in Texas. Because surveillance of chancroid was no longer deemed productive, the disease (along with lymphogranulorna venereum and granuloma inguinale) was removed from the list of reportable diseases in Texas in 1983.

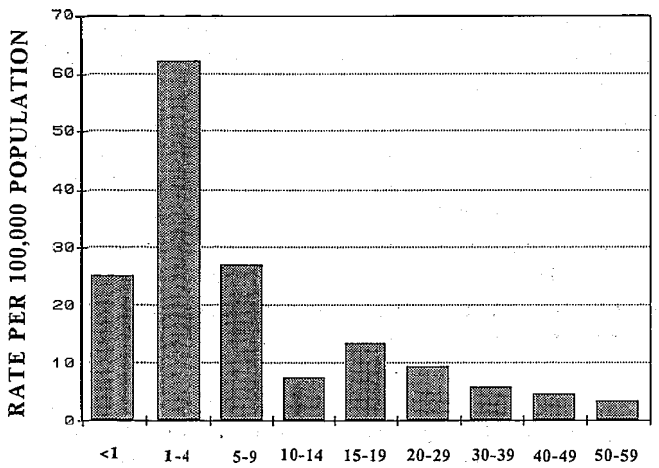
In May 1986, the Dallas STD Clinic diagnosed three cases of chancroid marking the beginning of an outbreak which involved a total of 386 cases. Cases peaked in August when 94 cases were reported. The epidemiology of this outbreak was similar to one which occurred in Los Angeles County, California several years ago. Over 83% of the Dallas cases were among black and Hispanic males who consorted with prostitutes in East Dallas. The Dallas outbreak was controlled by 1) instituting *H.* ducreyi culturing procedures in the laboratory; *2)* increasing clinicians' awareness of chancroid in the STD clinic; 3) developing a protocol for managing chancroid patients; 4) intensive patient interviewing and contact tracing; 5) releasing a medical alert to all members of the Dallas County Medical Society, as well as to neighboring Tarrant County; 6) personally visiting physicians in high incidence areas; 7) coordinating a media blitz; and 8) distributing chancroid pamphlets, printed both in English and Spanish, in high incidence areas,

SHIGELLOSIS

In 1986, 2454 cases of shigellosis were reported in Texas resulting in an incidence rate of 14.6 cases per 100,000 population. The number of cases reported in 1986 was 43% more than in 1985 when the incidence rate was 10.7 per 100,000. In 1986, 47% of the cases occurred in children under 10, and children 1-4 years of age experienced the highest age-specific incidence rate of *62.0* cases per 100,000 population. Incidence rates for the various age-groups are illustrated in Figure 24. The distribution of cases by race/ethnicity revealed

Figure 24

Reported Cases of Shigellosis per 100,000 Population by Age Group, Texas, 1986



that Hispanics experienced the highest incidence rate (26.06 cases per 100,000 population) The incidence rate of shigellosis in blacks was 10.6 cases and 8.5 in whites.

Serotypes were available for 66% of all 1986 shigellosis cases. In Texas, 72% of these 1613 cases were found to be caused by *S.* sonnei, 24% by *S.* flexneri, 3% by *S.* boydii, and 1% by *S. dysenteriae*. No deaths caused by shigellosis were reported in 1986.

Four shigellosis outbreaks accounted for 460 (19%) of the 2454 cases reported in Texas in 1986. Three outbreaks were caused by *S.* sonnei and one by S. flexneri. The first outbreak occurred in San Marcos (Hays County) in late January. At least 43 patrons of a local restaurant developed shigellosis caused by *S. sonnei*; five patients were hospitalized. These individuals had eaten at the restaurant on one of three days, and all became ill within a four-day period. Even though salad was not significantly associated with illness, 100% of the cases interviewed had eaten salad. The five foodhandlers who prepared salads denied having a gastrointestinal illness during the week before the patrons became ill.

The second outbreak began on July 30 subsequent to a banquet held in Uvalde, Texas. Eighty-one of the 200 individuals who ate at the banquet were interviewed, and 46 persons infected with *S. flexneri* were identified. Potato salad and beef brisket were statistically associated with illness. Preparation of the potato salad entailed extensive handling, and following preparation, the salad was inadequately refrigerated prior to the banquet. The potato salad had been stored in containers over 18 inches tall in a horizontal cooler, and the sliding top door of the cooler had to be left open because the food containers were so tall.

The third outbreak was unusual in that the source of the *S.* sonnei infections was raw oysters harvested from an approved source. Twenty-four cases were identified in individuals who had eaten raw oysters in late June and early July from one oyster dealer. The cases were distributed among patrons of eight restaurants in four communities along the Texas Gulf Coast. An investigation of the oyster dealers' operations identified one harvester who was infected with the common strain of Shigella. This dealer denied eating raw oysters; therefore, it was hypothesized that he was to be the source of contamination.

The final and largest outbreak occurred from August 30 through October 7, 1986 and involved 347 persons in Odessa and Midland who developed culture-confirmed *S.* sonnei. Illness was associated with eating at one of several fast-food restaurants in Midland or Odessa. A case-control study of persons who had eaten at one of the Odessa restaurants demonstrated an association between shigellosis and having eaten foods containing shredded lettuce (odds ratio = 58; 95% confidence limits = 7.6, 237). Surveillance in other West Texas towns identified two clusters of *S. sonnei* infections related to eating at the outlets of one fast-food restaurant in those towns. All the implicated restaurants received shredded lettuce that had been prepared by the same processing plant. This plant also distributed whole heads of lettuce, but restaurants that received only heads of lettuce were not associated with the outbreak. Investigation of the processing plant did not identify the mode by which the lettuce was contaminated. This was one of the largest shigellosis outbreaks in the last decade to have occurred in the United States.

TOXIC SHOCK SYNDROME

Eighteen cases of toxic shock syndrome (TSS) which met the Centers for Disease Control case definition were reported to the Infectious Diseases Division during 1986 representing a 33% decrease from the 27 cases reported in 1985. The majority (10/18) of cases occurred in Public Health Region (PHR) 5; PHR 10 reported three cases, PHR 3, two cases, and one case each was reported from PHRs 6, 8, and 9. Fifteen cases (83%) were female, and three (17%) were male. All but one case, a 10-year-old, Hispanic male, were white.

Ten (56%) of the 18 cases were associated with menstruation, and nine of these were known to be using tampons at the time of onset. The tenth individual denied tampon usage, and blood and vaginal cultures were negative for *Staphylococcus aureus.* *S. aureus* was isolated from 14 (77%) of the 1986 TSS cases. The ten menstrually associated cases ranged in age from 15-37 years (mean 20.8). The eight non-menstrual cases were 10-66 years of age (mean 31.5) and are described in Table 8.

Table 8

Events Associated with and Characteristics of Non-tampon Associated Toxic Shock Syndrome in Tesas, 1986

Number of Cases	Associated Event	Age	Sex
4	**Focal Infections**		
	Septic olecranon bursa	66	M
	Lesion (back)	62	F
	Pustular psorisis	32	F
	Muscle Abscess	12	M
1	C-section	25	F
1	Contraceptive Sponge	19	F
2	None Identified	26	F
		10	M

Organ systems involved included gastro-intestinal (100%), mucous membrane (94%), muscular (78%), renal (50%), central nervous system (50%), hepatic (39%), and hematologic (17%). In addition to the involvement of three or more organ systems, cases also had fever ($\geq 102^{o}F$, $\geq 38.9^{o}C$), hypotension (systolic blood pressure ≤ 90 mm Hg, syncope, or orthostatic hypotension), and a rash with subsequent desquamation.

S. *aureus* resistant to all antibiotics but vancomycin was isolated from the vagina of one case. This 37-year-old patient had no history of recent hospitalization or medical procedures. She was menstruating when admitted to the hospital three days following her onset of symptoms. The patient reportedly had been using tampons, but was not wearing one when admitted. She presented with fever ($103.0^{o}F$); a fine, macularrash on her abdomen; blood pressure 50/0 mmHg; vomiting, diarrhea, and abdominal pain; myalgia; conjunctival and vaginal hyperemia; vaginal discharge; disorientation; and seizures. Her chest roentgenogram showed a mild increase in lung markings, but no definite infiltrates. Laboratory data and electrocardiogram indicated severe renal, hepatic, hematologic, and cardiac involvement. Blood, urine, and cerebrospinal Eluid cultures were negative for *S. aureus* and other pathogens. On the second day of admission, the patient experienced a fatal cardiac arrest. This was the only reported death due to TSS in Texas in 1986.

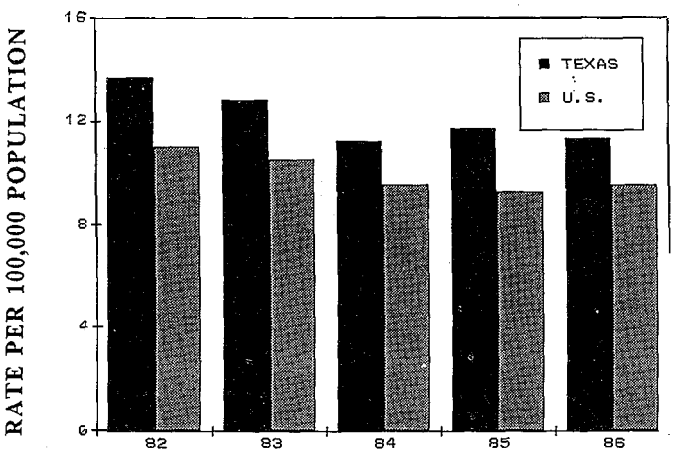
TUBERCULOSIS

During 1986, 1890 cases of tuberculosis were reported in Texas. This number resulted in an incidence rate of 11.3 cases per 100,000 population, a slight decrease from the 11.7 incidence rate reported in 1985. For many years, tuberculosis morbidity was declining at an average 5% per year, but this decline has leveled off in spite of extensive ongoing disease surveillance and containment programs. Over half (55%) of the tuberculosis cases in Texas occurred in the seven largest metropolitan areas of the state; the city of Houston reported the greatest number of cases (489), followed by Dallas with 206 cases, and San Antonio with 114 cases. The next highest concentration of cases was found along the border areas of the state where 266 cases were identified in 1986.

The incidence rate of tuberculosis in Texas is generally higher than for the rest of the United States (Figure 25). Texas ranks third in the nation in the number of cases reported, with California and New York ranked first and second, respectively. Tuberculosis morbidity in

Figure 25

Reported Cases of Tuberculosis per 100,000 Population Texas and United States Compared, 1982-1986



the US has recently increased due in part to the occurrence of tuberculosis among individuals infected with the human immunodeficiency virus (HIV) and to the immigration of infected individuals from countries where tuberculosis is prevalent.

In Texas, the statistical relationship between tuberculosis and HIV infection and/or acquired immune deficiency syndrome (AIDS) is not clear. A comparison of the Texas tuberculosis and AIDS case registries identified only 18 common cases. It must be noted, however, that in 1986, there was an increase in tuberculosis morbidity among individuals 20-34 years of age, the age group in which HIV infections are most often found. In 1985, 472 tuberculosis cases were reported in this age group, whereas in 1986, 536 cases occurred, an increase of 13%.

There was also an increase statewide in the number of cases among individuals whose ethnicity was reported as Asian or Pacific Islander. In 1986, 161 cases were reported in this ethnic group compared to 143 in 1985, likewise an increase of 13%.

TULAREMIA

Texas recorded eight cases of tularemia during 1986, the same number as was reported in 1985. Seven infections were acquired in Texas, and the eighth was reportedly exposed in Oklahoma. Specific exposures included tick and other insect bites (4) and skinning animals (3). No potential exposure was reported for a 67-year-old female resident of rural Nacogdoches County.

Six of the eight cases were male, of whom four were white and two were Hispanic. Male cases ranged in age from 10 to 63, and three were less than 20 years old. Both female cases were white and represented the youngest (8 years old) and the oldest (67 years old) case.

Ticks were the implicated vector in three cases, and a flying insect was reportedly involved in a fourth. These four cases included: an 8-year-old female who played in wooded areas in her residential Corpus Christi neighborhood and occasionally removed attached ticks from herself, a 19-year-old, Hispanic male who reported tick bites while cutting trees in Bexar and Medina counties and who had *Francisella tularensis* cultured from an inguinal lymph node; a 30-year-old male resident of rural Upshur County who reported a "mosquito" bite prior to onset, and a 63-year-old male Dallas resident who became infested with ticks while digging-up trees in Oklahoma. These cases experienced onset of symptoms between late April and early September.

Three remaining cases reported exposures associated with hunting. The first was a 29-year-old, Hispanic male from Pecos County, who in mid-March cut his thumb while skinning a rabbit. The other hunting-associated cases were brothers from Laredo, aged 10 and 14 years, who were bitten by fleas while skinning a javelina shot in Duval County in late November. The younger brother was seen first by a physician, who initially suspected plague based on the history of flea bites and an enlarged axillary lymph node. An aspirate of the node was negative for *Yersinia pestis.* The older brother then presented with a "classic" ulcerated lesion on a finger. Upon re-examination of the younger boy, a similar lesion was identified under a bandage on a finger-tip. A lymph node aspirate from the 14-year-old was positive for F. *tularensis.*

TYPHOID FEVER

Twenty-eight cases of typhoid fever were reported in Texas in 1986. *Salmonella typhi* was cultured from blood specimens in 23 of the cases. The other five cases experienced a history of fever for three or more days with *S. typhi* cultured from a stool specimen. The cases resided in 13 different counties with seven cases residing in Harris County.

The 28 cases ranged in age from two to 40 years; the median age was 24 years. Sixteen of the cases were Hispanic; five were Asian; four were black; and three were white. A 22-year-old, Hispanic male died in July 1986 from typhoid fever. This was the first typhoid fever death in Texas since 1980.

Twenty of the cases traveled outside the United States during the month preceding onset of symptoms and were considered imported cases. Mexico was the country of exposure for 13 of these imported cases. Eight cases had exposure to *S. typki* within Texas. Typhoid carriers were identified for three of these eight cases; the carrier in each case was a household member. The source of exposure for the other five cases was unknown.

VACCINE-PREVENTABLE DISEASES

MEASLES

During 1986, 1053 measles-like illnesses (rash/fever) were reported to the Texas Department of Health. Upon investigation, 398 were confirmed as measles. These cases represented a 12% reduction in measles morbidity from 1985, when 450 cases were confirmed and a 38% reduction from 1984, when 642 cases occurred (see Figure 26).

The majority of measles cases in 1986 was attributed to six major outbreaks. These outbreaks accounted for 83% of the Texas cases and occurred mainly in El Paso, Smith, and Dallas counties (see Figure 27).

To assess the success of interrupting indigenous transmission of measles, it was necessary to differentiate imported from indigenous cases. An imported case is defined as one whose infection is acquired outside Texas, i.e. onset of rash has occurred within 18 days of entering the state, and illness cannot be epidemiologically linked to local transmission, Imported cases are classified into two groups:

Figure 26

Reported Cases of Measles in Texas
1982-1986

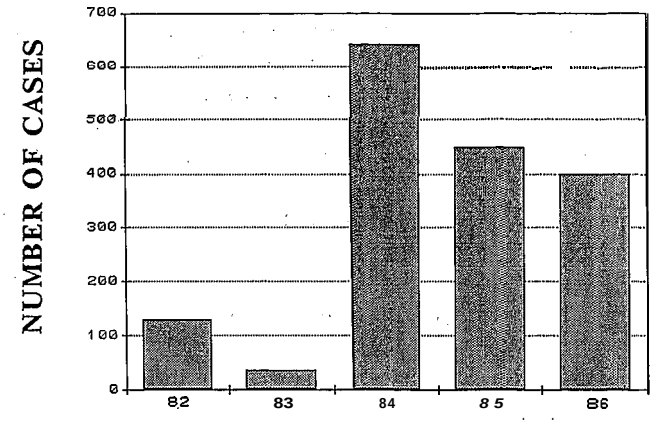
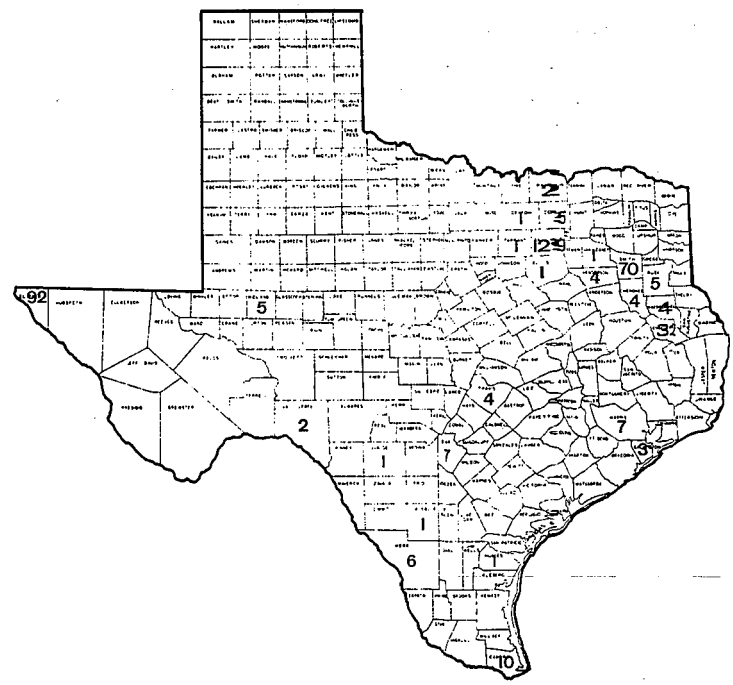


Figure 27

Reported Cases of Measles in Texas
by County of Residence, 1986



international and out-of-state. Thirty-four (8.5%) of the Texas measles cases in 1986 were traced to sources outside of Texas. All but one were imported from Mexico; that case was imported from Pakistan.

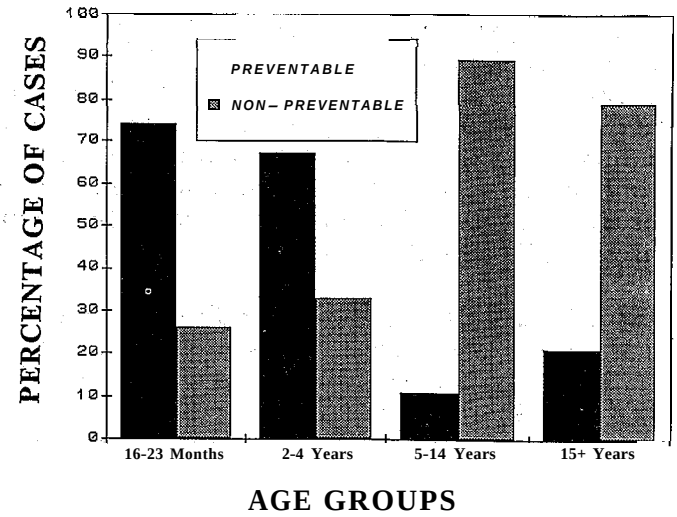
Twenty-eight percent of the cases occurred in counties along the Texas-Mexico border, and the source of three outbreaks was traced to residents of Mexico. Furthermore, 30% of the isolated cases (cases with no epidemiologic linkage or identified cluster) reported Mexico as the source of infection. These data emphasize the continued measles importation problem in Texas and offer a plausible explanation of why Texas consistently ranks as one of the highest morbidity states in the nation.

These cases were also considered in relation to their preventability, and cases were classified as preventable or non-preventable. A case is considered non-preventable if measles illness occurs in a person "adequately" immunized or: (1) less than 16 months of age; (2) born before 1957; (3) with a medical contraindication to receiving vaccine; or (4) who has a religious exemption under the state law. Seventy-six percent (76%) of the Texas cases in 1986 were considered non-preventable.

The Immunization Practices Advisory Committee recommends that the combined measles-mumps-rubella (MMR) vaccine be administered to infants at 15 months of age. At least 95% of vaccine recipients will develop adequate measles antibody when vaccinated at this age. Figure 28 illustrates the preventable and non-preventable measles cases by age group. Infants under 16 months of age have been excluded as all were considered non-preventable cases.

Figure 28

Distribution of Measles in Texas Preventable and Non-preventable Cases Compared by Age Group, 1986



PERTUSSIS

Pertussis is an acute respiratory illness caused by the bacterium ***Bordetella pertussis.*** The disease is most serious in infants and young children. Complications associated with pertussis include pneumonia, atelectasis, convulsions, encephalopathy, and death. Among older children, adolescents, and adults, the disease can be a mild to inapparent infection. This complicates investigation and control of the disease, and causes under-reporting of the real incidence.

During 1986, the Immunization Division received 200 reports of pertussis-like illness. Thorough investigation of each suspect case resulted in 112 cases being confirmed as pertussis, a 30% reduction in the number of cases reported in 1985 (379). Most cases (77%) were laboratory-confirmed, 24 by isolation of B. ***pertussis*** and 62 by direct fluorescent smear. Twenty-six cases were clinically diagnosed.

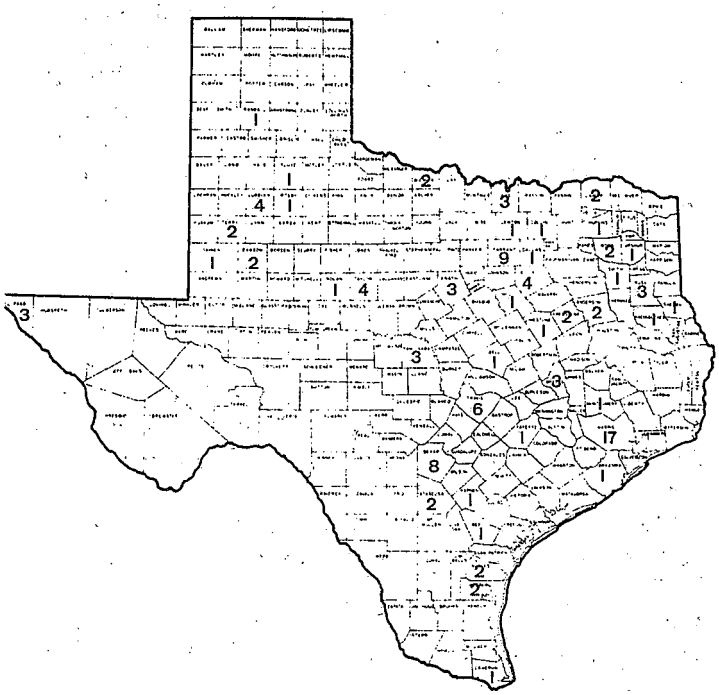
Pertussis is a disease of very young children. Infants less than six months of age accounted for the majority (54%) of the Texas cases in 1986, and an additional 13 cases (11%) occurred in infants between six and eleven months of age. Only 12 (11%) cases were reported in individuals over the age of 10. Although the number of cases reported in white and Hispanic infants under one year of age was almost equal, 31 and 32 cases, respectively, the age-specific incidence rate was highest for Hispanic infants, 38.9 cases per 100,000 population. In contrast, this rate for white infants was 20.4 cases and 27.1 for black infants.

Pertussis reports were received from 45 Texas counties as illustrated in Figure 29. Harris County reported the largest number of cases (17).

Of the 200 suspect cases reported, 46% required

Figure 29

Reported Cases of Pertussis in Texas
by County of Residence, Texas - **1986**



hospitalization with an average stay of 2.3 days. In comparison, 68% of the 112 confirmed pertussis cases required hospitalization; the average stay was 3.7 days. No death due, to pertussis was reported in Texas in 1986.

Vaccine-status was known for only half of the Texas pertussis cases in 1986; 23 individuals had received three or more doses of the DTP vaccine, 6 had received two doses, and 27 had received only one dose of vaccine. Recent serum-antibody studies have revealed that the combined DTP vaccine is 88% effective following receipt of the third dose in the series.

In the last two years, an increased incidence of pertussis has been reported nationwide, as well as in Texas. Concern for the high incidence of pertussis is compounded by the national attention being given to possible adverse effects of the vaccine. There are risks associated with the vaccine, but as with the administration of any'biological, there must be a balance between risk and benefit. In this case, the risk of illness and the resulting complications and hospitalizations far outweigh the risk of vaccination.

As a result of liability issues, the cost of the vaccine has escalated both in the public and private sectors'. Research is continuing in the development of a new acellular form of pertussis vaccine, and compensation programs to address vaccine-related injuries are being considered at both state and national levels. It is anticipated that these endeavors will reduce the incidence of pertussis in the, future.

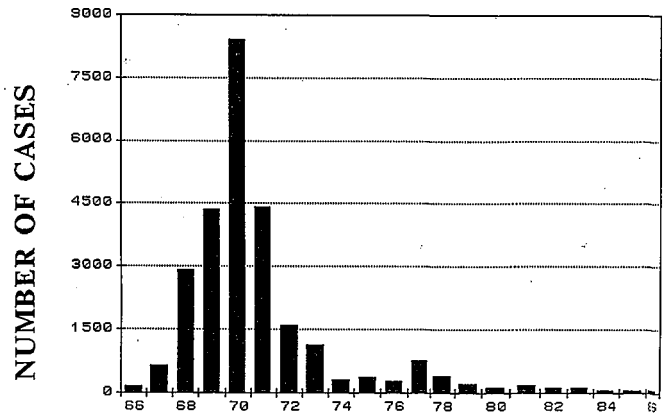
RUBELLA

Rubella is a relatively mild viral illness which may be inapparent in 30-50% of the cases, Generally, the symptoms include a discrete, pinkish-red rash of approximately three days duration, a low grade fever, and lymph-adenopathy. Arthritis and arthralgia are more commonly present among'adults. In addition, women of child-bearing age run the increased risk of fetal complications if rubella is contracted during the first trimester of pregnancy.

Seventy-five cases of the disease (exclusive of congenital rubella syndrome) were reported in Texas in 1986. This represented a 25% increase over 1985, when Texas experienced the lowest morbidity since reporting of the disease began in 1966 (Figure 30). Eighty-five percent of the cases occurred from January through May 1986 (Figure 31), and clusters of cases were reported

Figure 30

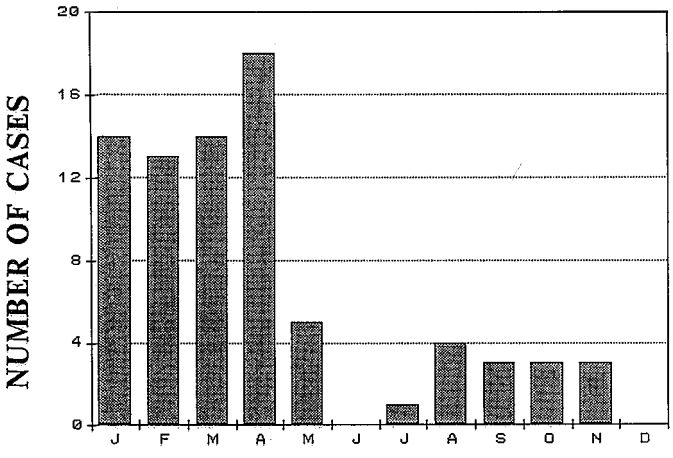
Reported Cases of Rubella in Texas
by Year of Report, **1966-1986**



YEAR OF REPORT

Figure 31

Reported Cases of Rubella in Texas
by Month **of** Onset, **1986**

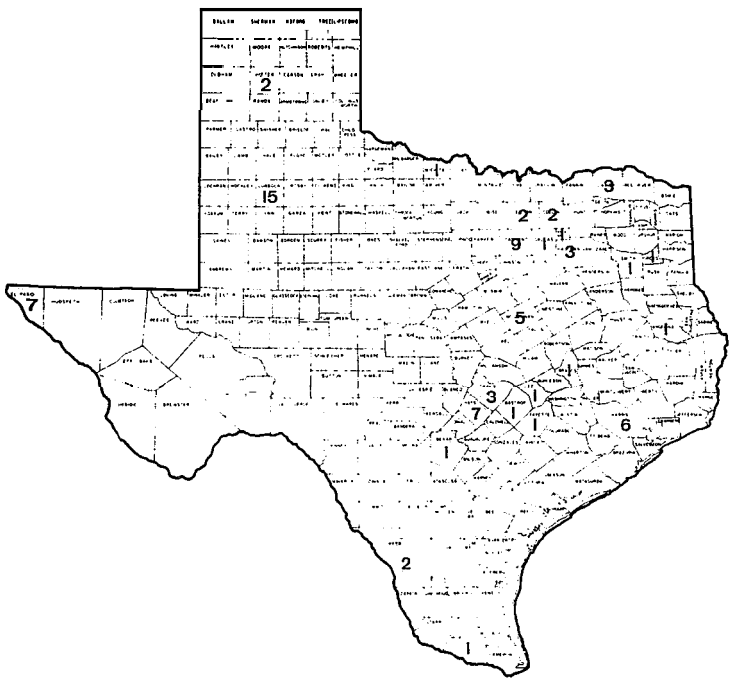


throughout the state during this period (Figure 32). Seven of eight cases in **Tarrant** County and all of the cases in Hays County had onset in March and April, and five cases of rubella occurred in El **Paso** within a 30-day period in April and May. Two clusters of cases occurred in Lubbock in 1986; 10 cases (67%) had onset January through March with six of the onsets occurring during a 16-day period in February. The second cluster in Lubbock occurred over a 21-day period in August and September.

As with measles, cases occurred both in individuals too young to be immunized, as well as those previously immunized. Therefore, continued follow-up of those susceptible to rubella and those at increased risk for serious sequelae (females of child-bearing age) was an important activity in 1986. In order to reduce this susceptibility, the Texas Department of Health implemented a rubella screening program, and approximately 41,000 females enrolled in family **planning/planned** parenthood programs were screened for rubella susceptibility. Over 4300 women were identified as susceptible, and referrals were issued by the Immunization Division for field follow-up. As a result, 1147 of these women were vaccinated against rubella. An additional 1975 susceptible women were not immunized for the following reasons: 64% were pregnant, 17% were lost to follow-up, 13% refused vaccine, 4% were refused vaccine by the health care provider, and 1% had medical contraindications.

Figure 32

Reported Cases of Rubella in Texas
by County of Residence, **1986**



Congenital Rubella Syndrome

Rubella is usually a mild disease; however, the effects on a developing fetus can be devastating. Congenital rubella syndrome occurs among 25% or more of infants born to women who acquire rubella during the first trimester of pregnancy. The risk of a single congenital defect drops to about 10% by the 16th week of pregnancy, and defects are rare when maternal infection occurs after the 20th week of gestation. The most common anomalies associated with congenital rubella syndrome include cataracts, glaucoma, microcephaly, deafness, patent **ductus** arteriosus, atrial or ventricular **septal** defects, purpuric skin lesions, hepatosplenomegaly, jaundice, radiolucent bone disease, and mental retardation. Moderate to severe cases of congenital rubella syndrome are recognizable at birth, but mild cases with only slight cardiac involvement or partial deafness may not be detected for months or even years after birth.

The diagnosis of congenital rubella syndrome

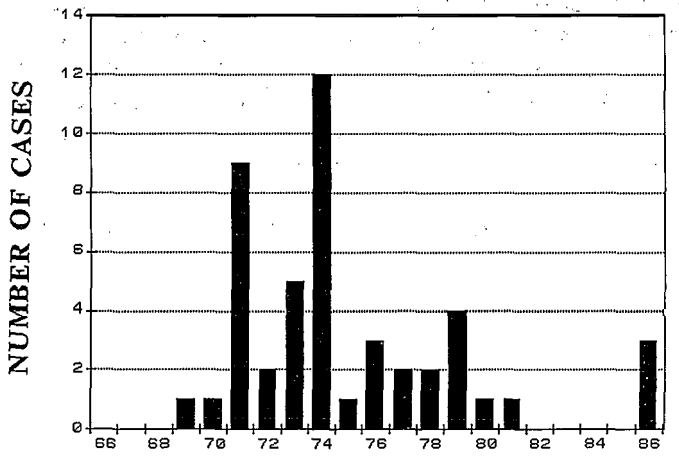
in the infant can be confirmed by isolation of the rubella virus, detection of specific rubella IgM antibodies, or the persistence of an HI titer beyond the expected time of passive transfer of maternal antibodies. Infants with congenital rubella syndrome may shed virus in nasopharyngeal secretions and urine for a year or more and may transmit infection to susceptible contacts.

Prior to widespread use of rubella vaccine which was licensed for use in the United States in 1969, rubella was an epidemic disease which occurred in cycles every six to nine years. During the five-year period 1968-1972, Texas experienced the greatest number of rubella cases (see Figure 30), but cases began to decline steadily following passage of the school immunization law in 1971; the average number of cases of rubella reported in Texas each year is now under 100. [The school law requires students through 11 years of age to be vaccinated against rubella.]

Likewise, as cases of rubella declined, so did congenital rubella syndrome. Figure 33 presents the number of cases of congenital rubella syndrome recorded in the state since reporting of the disease began in 1966. The majority of cases reported through 1974 reflect delayed reporting of older children rather than newborns. These children, most of whom were 3-5 years of age in 1974, were diagnosed as the result of an intensive surveillance effort at a

Figure 33'

Reported Cases of Congenital Rubella Syndrome in Texas by Year of Report, 1966-1986



diagnostic, treatment, and training facility for deaf and blind children. In 1986, three cases of congenital rubella syndrome were reported in Texas. These were the first cases to have been documented in the state since 1981 when one case was reported.

The first case of congenital rubella syndrome involved a white, male infant born on November 5, 1986 in Fort Worth. The infant was delivered at approximately 31 weeks gestation weighing only 2.5 pounds. Following delivery, the baby was found to have cataracts, patent ductus arteriosus, and a low platelet count, and a diagnosis of possible congenital rubella syndrome was made. This diagnosis was confirmed by isolation of the rubella virus from a nasal swab and the detection of IgM antibodies in serum.

The infant's mother did not recall a rubella-like illness early in pregnancy. On the contrary, she had an immunization record indicating that she had received rubella vaccine in 1973 when she was six years old. The baby's parents resided in West, a small community of approximately 2500 people, located about 20 miles north of Waco in McLennan County. Upon investigation, a small cluster of four cases of rubella was discovered to have occurred in West during the period April 14-17, 1986. The cases all attended the same day-care center and ranged in age from six to twelve months, too young to have been immunized against rubella. No additional cases of rubella were reported either in the day-care center or in the community following this episode. Total enrollment at this child-care facility was approximately 68 children, including 12 infants under 18 months of age who were cared for in a room separate from the older children in the center.

The mother of the baby with congenital rubella syndrome apparently experienced an asymptomatic or mild case of rubella around the time of the child-care facility cases; there was no known direct contact with this facility. These cases occurred during the first or second weeks of the mother's pregnancy. She had no other children, and no other specific source of exposure could be identified. The mother had no reported contact with the day-care center.

The second case involved a female infant born on November 13, also in Fort Worth; this infant

weighed 3.5 pounds at delivery. Manifestations of congenital rubella syndrome included hearing loss, mental retardation, congenital heart disease, patent ductus arteriosus, mitral valve prolapse, tricuspid regurgitation, low platelet count, long bone radiolucencies, and jaundice. The diagnosis of congenital rubella syndrome was confirmed by the detection of rubella IgM antibodies in serum collected from the infant following delivery.

The mother who was 23 years of age had recently immigrated to the United States from Pakistan and had arrived only two months prior to the child's birth. A language barrier prevented health care providers from documenting a complete and specific medical history. However, they were able to establish that the mother had experienced a rubella-like illness (fever and rash) in March 1986, before her arrival in the United States. There was no record of previous rubella immunization.

The third case of congenital rubella syndrome was a male infant born on November 19 in Austin. The diagnosis was suspected when the child was found to have bilateral hearing loss, possible cataracts, congenital heart disease, patent ductus arteriosus, congestive heart failure, and hepatosplenomegaly. The diagnosis was confirmed by the detection of rubella IgM antibodies in serum collected from the infant one week after delivery.

The mother was a 25-year-old immigrant from Honduras but was living in Texas at the time of conception. On April 20, 1986, she visited the emergency room of a local hospital complaining of a rash on her face and body, as well as joint pain. No specific diagnosis was made; however, rubella did not appear to be suspected. One report indicated that the physician suspected Lyme disease; this report was not confirmed. At the time of this illness, the woman was unaware of the fact that she was five to six weeks pregnant; her pregnancy was not confirmed for another four weeks. During her first prenatal visit on May 21, routine serologic screening for rubella was reported as "reactive."

A review of rubella morbidity data revealed that at the time of this mother's illness in April, no cases of rubella had been reported in Travis County since early in January 1986 when one case occurred in Austin. These were the only cases of rubella reported in Travis County during 1986. No source of exposure to rubella was established in this case.

These cases serve as an important reminder that all women of child-bearing age who are susceptible to rubella should be vaccinated.

TETANUS

In 1986, 12 cases of tetanus were reported to the Texas Department of Health, the largest number reported in Texas since 1980. Serosurvey results have indicated that one half to two thirds of persons over 60 years of age have inadequate levels of circulating antitoxin, yet half of the Texas cases in 1986 were under 60 years of age. Ages of the cases ranged from 10 months to 93 years. Three of the six individuals under 60 had never been vaccinated (including the 10-month old infant); one had received an incomplete series; and vaccination status of two cases was unknown. Similarly, of those over 60 years, one had never been vaccinated, one had received an incomplete series, and the status of four was unknown. The case-fatality ratio was the lowest in several years at 17%. Ages of the cases who died were 62 and 93 years.

Eight (67%) of the 1986 cases were male. Of the 11 cases whose race/ethnicity was known, six (55%) were Hispanic, four (36%) were white, and one (9%) was black. Cases were distributed fairly evenly around the state.

The majority of wounds or injuries related to tetanus included puncture wounds (6 cases) or lacerations (2 cases). Injuries were attributed to: foreign objects puncturing hands or feet (5 cases), stubbing a toe (1 case), IV drug abuse (1 case), bites from fire ants (1 case), gardening (2 cases), leg ulcer (1 case), and an unknown exposure in the 10-month-old. All cases had onset between May and October. The median incubation period (between acute injury and onset) for the six patients on whom this information was known was eight days (range 5-11 days).

VIRAL HEPATITIS

Viral hepatitis refers to diagnoses of liver inflammation caused by infectious agents: hepatitis A, hepatitis B, non-A, non-B hepatitis, and hepatitis D (delta-agent). Collectively there were 4,695 cases of viral hepatitis reported to the Infectious Diseases Division in 1986, reflecting a 15% decrease from the 1985 total of 5,546 cases. No cases of hepatitis D were reported in Texas in 1986.

Hepatitis A

This type of hepatitis is caused by hepatitis A virus, an enteric virus whose principle mode of transmission is person-to-person via the fecal-oral route. The disease is an acute, self-limiting infection occurring primarily in children and young adults. There is no carrier state; the vast majority of cases recover completely with life-long protective immunity.

There were 2,137 cases of hepatitis A reported from 134 counties during 1986, representing 46% of all viral hepatitis reported in Texas (Figure 34). Cases reported in 1986 represented a 17% decrease from cases reported in 1985 and continued a downward trend in hepatitis A morbidity since a peak in 1982 (see Figure 35). The annual incidence rate of hepatitis A in 1986 was 12.8 cases per 100,000 population, and the distribution of cases by sex was 1.2:1, males to females. There were two deaths reported, resulting in a case-fatality ratio of 0.1%. Both were white males, 33 and 84 years of age.

Figure 34

Reported Cases of Hepatitis in Texas by Type, 1986

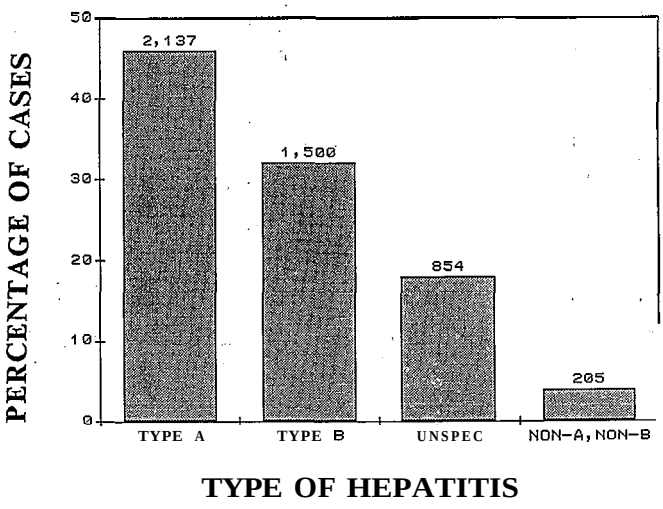
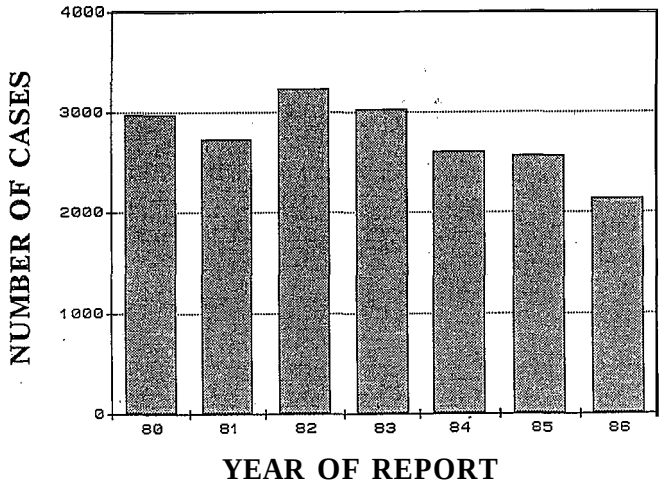


Figure 35

Reported Cases of Hepatitis A in Texas by Year of Report, 1980-1986

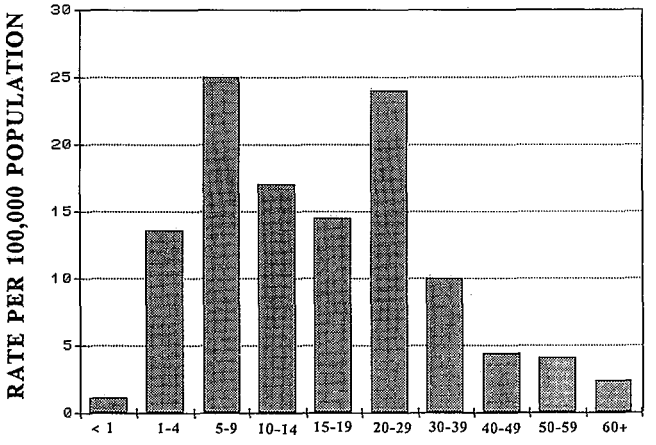


The distribution of hepatitis A cases by age included a biphasic curve, with peaks at ages 5-9 years (16.5% of cases) and 20-29 years (32.2% of cases); see Figure 36. This is a pattern typical of hepatitis A activity among members of families with diapered children and/or children attending child-care facilities. Approximately one out of every four hepatitis A cases (34%) was less than ten years of age, and three out of four cases (76%) occurred in persons less than 30 years of age. Distribution of cases by race/ethnicity and sex was: white males, 32%; white females 25%; Hispanic males 20%; Hispanic females 18%; black males 2%; and black females 2%;. Although whites accounted for the majority (57%) of the reported cases, Hispanics experienced the highest incidence rate of hepatitis A in Texas (Figure 37).

In 1986, three outbreaks of hepatitis A were reported to the Infectious Diseases Division. The first occurred in Odessa (Ector County) and was a continuation of an outbreak that began in September 1985. Fifty-seven cases were reported throughout the first six months of 1986 (in addition to the 52 cases reported in 1985), resulting in a total of 109 cases. This

Figure 36

Reported Cases of Hepatitis A in Texas
per 100,000 Population, by Age Group, 1986

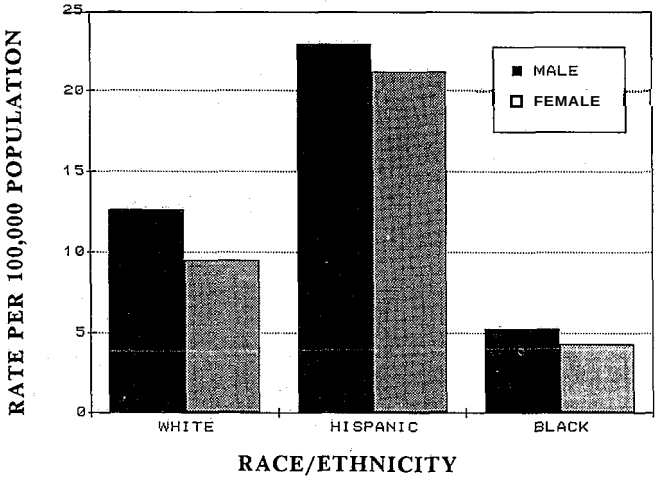


extended community-wide outbreak spanned at least ten cycles of disease transmission and occurred primarily in young adults.

Another cluster of cases took place in Coleman (Coleman County) during the months of April and May and involved 17 cases. This outbreak was characterized by person-to-person transmission among members of three families and their close contacts. It was suspected that an Easter picnic may have served as the source, but it was not known whether a specific food was the vehicle for transmission.

Figure 37

Reported Cases of Hepatitis A per 100,000 Population by Sex and Race/Ethnicity, Texas - 1986



The third outbreak of hepatitis **A** occurred in Bowie and Nocona (Montague County). The 18 cases ranged in age from 15 to 32 years, with the exception of a 67-year-old female. Seven cases resided in Bowie, and 11 cases lived in Nocona. The cases in Bowie occurred primarily in July, and the Nocona cases occurred later, August through October. The male to female ratio of cases was 1.6:1 (M:F). The source of this outbreak was never determined.

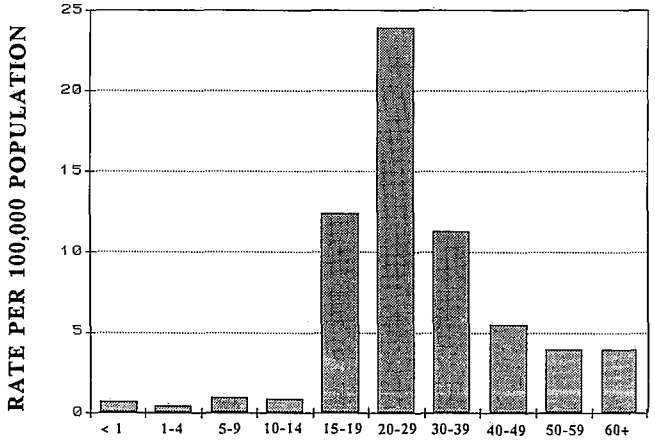
Hepatitis B

Hepatitis B, formerly known as serum hepatitis, is primarily a disease of adults. The virus is commonly found in high titers in blood and to a lesser degree in other body fluids such as semen, vaginal secretions, saliva, etc. The routes of transmission include sexual contact, contact with blood or body fluids by percutaneous or transmucosal exposure and perinatal exposure from an infected mother to her baby.

In 1986, there were 1,500 cases of hepatitis B reported from 111 counties resulting in an incidence rate of 9.0 cases per 100,000 population, a slight decrease from 1985. Hepatitis B cases accounted for 32% of all the viral hepatitis reported in Texas this year. As

Figure 38

Reported Cases of Hepatitis B in Texas
per 100,000 Population, by Age Group, 1986



in previous years, males outnumbered females in all racial/ethnic groups approximately 2:1. Four cases died as a result of their hepatitis B infections resulting in a case-fatality ratio of 0.3%. The deaths were 22, 45, 68, and 86 years of age.

Because hepatitis B is transmitted via sexual contact and percutaneous exposures, the distribution of cases by age is very distinctive from that for hepatitis A. These activities and behaviors are more closely associated with adults and teenagers than children. Approximately 95% of the hepatitis B cases, both male and female occurred in persons age 15 years or older; thus, the highest incidence rates occurred in individuals 15-39 years of age (Figure 38). Blacks had the highest annual incidence rates (17.0 in males and 8.2 in females) of hepatitis B of the three major racial/ethnic groups (Figure 39). However, the reverse was true for hepatitis A, where the incidence rates of cases among blacks was approximately 5.0 cases per 100,000 population, the lowest among the three groups.

No outbreaks of hepatitis B were reported in Texas during 1986.

Non-A, Non-B Hepatitis

The diagnosis of non-A, non-B hepatitis is generally one of exclusion; acute hepatitis A and B are ruled out by negative serologic results for hepatitis A IgM and hepatitis B surface antigen (HBsAg), respectively. The epidemiology of non-A, non-B hepatitis in this country is similar to that for hepatitis B; the etiologic agent(s) of non-A, non-B hepatitis are transmitted from person-to-person via contact with blood or body fluids. Onset of symptoms may be gradual with symptoms ranging in severity from inapparent to rapidly fulminating disease. A chronic carrier state may develop in 10-40% of adult infections.

In 1986, there were 205 cases of non-A, non-B hepatitis reported from 47 counties. Disease activity was centered in the major cities in the state, possibly because of the availability of medical tests required to make the diagnosis. Of the four hepatitis report categories, this was the only one to show an increase in case totals over the previous year, up 14% over 1985. The statewide incidence rate was 1.2 cases per 100,000 population, and cases accounted for 4% of all viral hepatitis in Texas. There were four deaths reported in this category, resulting in a case fatality ratio of 2%. All four were white, and three were male. The deceased ranged in age from 15 to 81 years.

The distribution of cases in 1986 by sex was somewhat unusual in that cases in females outnumbered males (Figure 40). Non-A, non-B

'Figure 39

Reported Cases of Hepatitis B per 100,000 Population by Sex and **Race/Ethnicity,** Texas - **1986**

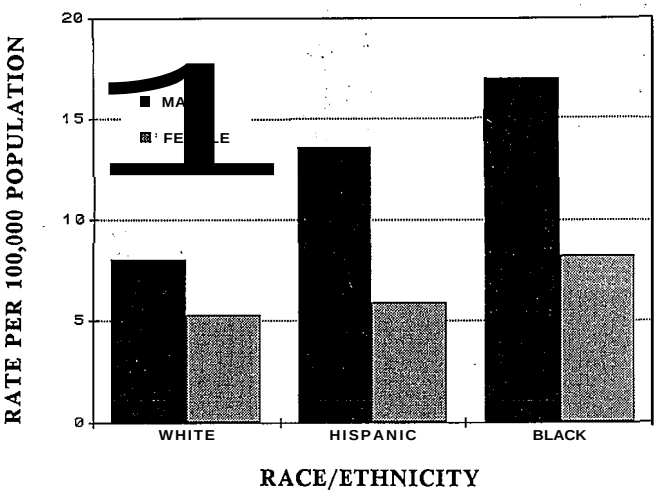


Figure 40

Reported Cases of Non-A, Non-B Hepatitis per 100,000 Population by Sex and **Race/Ethnicity,** Texas - **1986**

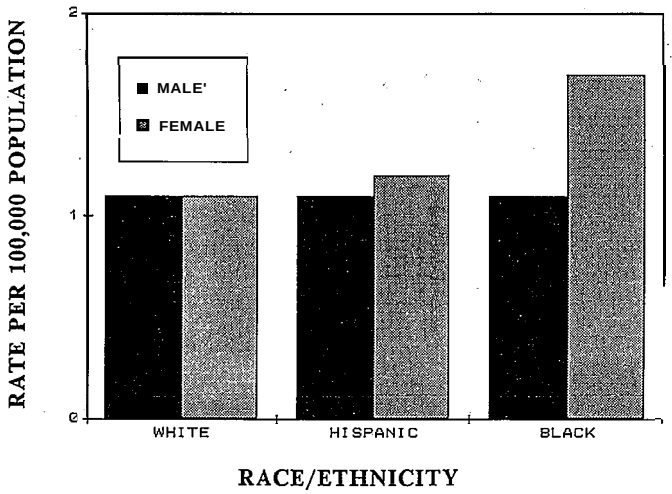
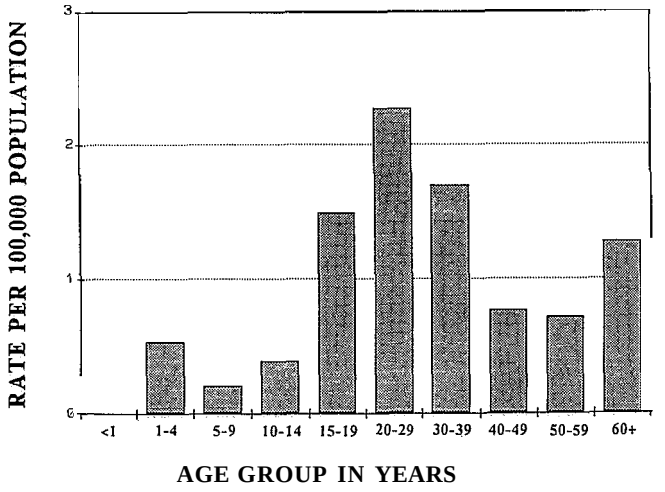


Figure 41

Reported Cases of Non-A, Non-B Hepatitis per 100,000 Population by Age Group, Texas - 1986



hepatitis is predominantly associated with adults because of the increased potential for exposure through blood/body fluid contact. The overwhelming majority of cases (93%) occurred in persons age 15 years or older. The incidence rates of non-A, non-B hepatitis by age group are illustrated in Figure 41. Approximately half of the cases (47%) were reported among persons 20-34 years of age. A small increase in the number of cases 60 years of age or older may be due to a greater likelihood that these people have medical procedures requiring blood transfusions. Almost 90% of all transfusion-transmitted hepatitis is attributed to non-A, non-B infection. Texas cases were equally distributed among the three major race/ethnic groups.

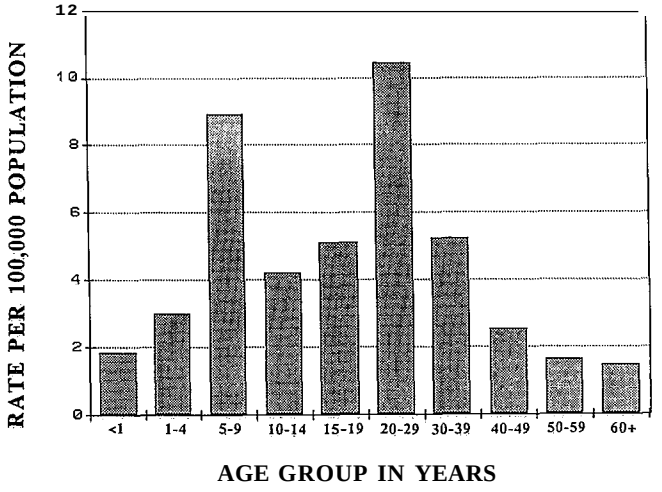
Hepatitis Unspecified

Hepatitis unspecified is a separate disease category primarily for reporting purposes. For the most part, this category includes cases diagnosed clinically with laboratory testing limited to serum enzymes and bilirubin determinations. Also included are those whose specific hepatitis A and B serology results are negative but whose epidemiology does not suggest non-A, non-B hepatitis.

There were 854 cases of hepatitis unspecified reported in Texas in 1986, a 34% decrease in cases from 1985. This decrease could be a result of the increasing use of diagnostic tests

Figure 42

Reported Cases of Hepatitis Unspecified per 100,000 Population by Age Group, Texas - 1986

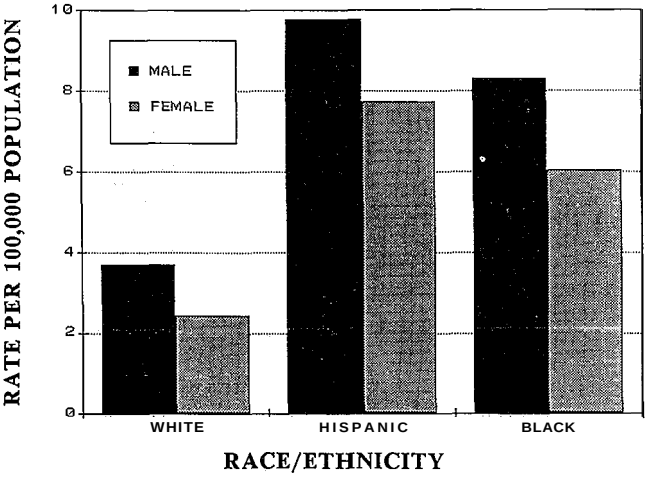


for hepatitis A and B. The annual incidence rate of cases per 100,000 population was 5.1. Cases were reported from 79 counties, and accounted for 18% of all viral hepatitis in Texas this year. Three deaths were reported in this category, a case-fatality ratio of 0.4%. Two of the deaths were children, five years and one-month of age; the third death was a 23-year-old.

It is suggested that much of the hepatitis unspecified may, in reality, be hepatitis A. The distribution of cases by age resembles that for hepatitis A in that the highest incidence was reported among children and young adults

Figure 43

Reported Cases of Hepatitis Unspecified per 100,000 Population by Sex and Race/Ethnicity, Texas - 1986



predominantly. Fifty-two percent (52%) of the cases of hepatitis unspecified were reported in adults age 20-39, and 34% occurred in persons under the age of 20 (see Figure 42). Distribution of cases by race/ethnicity was 46% white, **38%** Hispanic, and 16% black. **As** in hepatitis **A,** the incidence rates were highest in Hispanics (Figure 43).

OTIIER EPIDEMIOLOGIC ACTIVITIES

POSSIBLE HUMAN EHRLICHIA CANIS INFECTIONS IN TEXAS

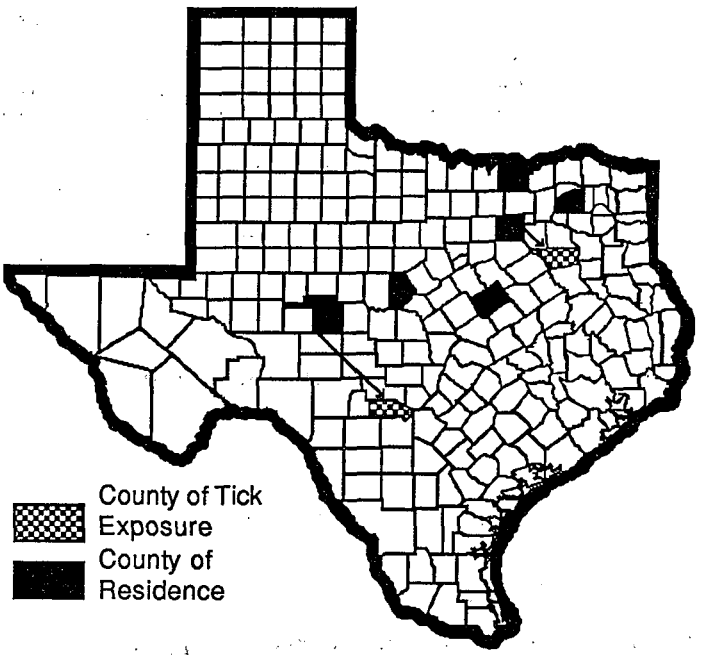
Canine ehrlichiosis is a tickborne disease caused by Elzrliclzia *canis*, a leukocytic rickettsia. This disease consists of a mild or severe febrile phase followed by a terminal phase two to four months later. The febrile or acute phase is characterized by fever, anorexia, depression, and weight loss. Most adult dogs survive the acute phase and regain a normal physical appearance. The terminal phase is characterized by fever, epistaxis, anorexia, anemia, edema of limbs, and pancytopenia, particularly thrombocytopenia. The acute phase of the disease usually occurs 5 to 15 days after the attachment of an infected brown dog tick, Rlzipicepkalus sanguineus. Previously, infections with E. *canis* were believed to be limited to dogs and other canidae. However; in 1986, a human infection with E. *canis* or a closely related species was recognized in a 51-year-old male following tick attachment in Arkansas. This patient experienced an illness characterized by fever, headache, thrombocytopenia, mild hepatitis, and anemia. Inclusion bodies in the patient's lymphocytes, noted by light and electron microscopy, were structurally similar to rickettsiae of the genus Elzrliclzia. The patient's serum was positive by the indirect fluorescent antibody test for antibodies specific for E. *canis*. Additional human infections with an Ehrliclzia have been reported in patients in Georgia, Missouri, and South Carolina. These patients also experienced a febrile illness following known tick attachment. All had serologic evidence of exposure to E. *canis*.

To determine whether human Elzrliclzia infections occurred in Texas, a retrospective serosurvey was performed.

Paired specimens submitted to the Bureau of Laboratories, Texas Department of Health for rickettsia1 and Lyme disease serologies between April 1, 1986, and November 30, 1986 were reviewed. Specimens serologically negative for infection with Rickettsia rickettsii, R. typlzi, and Borrelia burgdorferi were tested by an indirect fluorescent antibody (IFA) test to Elzrliclzia *canis*. In addition, specimens were tested by an IFA test to Coxiella burnetii, the etiologic agent of Q fever, and by a bacterial agglutination test to *Francisella* tularensis, the etiologic agent of tularemia.

Figure 44

Ehrlichia canis Infections in Texas
by County of Residence, 1986



A case of human *Ehrlichia* infection was defined as a patient with a four-fold or greater rise in antibody titer to *E. canis* antigen, with a peak titer ≥1:80, by the IFA test and negative serology results for Lyme disease, murine typhus, Q fever, Rocky Mountain spotted fever, and tularemia.

Clinical and epidemiological information was obtained from interviews with the patients and their physicians, and by reviewing each patient's medical record.

Paired serum specimens from 56 patients were tested. These patients ranged in age from 5 to 77 years and resided in 27 counties throughout Texas. Six of the 56 patients (10.7%) showed a four-fold or greater rise in antibody titer to E. *canis* and met the case definition.

The epidemiological characteristics of the six cases are presented in Table 9. The cases ranged in age from 36 to 68 years. Four were males, and all were white. Three of the cases had onset of symptoms in July. Three recalled recent tick attachment preceding onset of symptoms. Patients #2 and #6 removed attached ticks 10 and 9 days, respectively,

Table 9

Epidemiological Features of Human
Ehrlichia canis Infections, Texas - 1986

Patient Number	Race	Sex	Age	Onset Date	Days After Onset Serum Collected	IFA Titer to E. canis	County of Residence	Attached Tick	County of Tick Exposure	Date Tick Removed
1	W	M	66	4/21	3 40	<1:40 1:320	McLennan	no		
2	W	F	44	5/31	1 16	1:80 1:1280	Tom Green	yes	Bandera	5/21
3	W	M	52	7/16	3 23	<1:40 1:640	Hopkins	no		
4	W	M	45	7/04	5 14	<1:40 1:320	Dallas	yes	Henderson	6/25
5	W	M	68	7/10	7 14	1:80 1:20,480	Brown			
6	W	F	36	–	0 12	<1:40 1:160	Grayson	yes	Grayson	7/31

before onset of symptoms. The six cases resided in six separate counties (Brown, Dallas, Grayson, Hopkins, McLennan, and Tom Green) illustrated in Figure 44. Two of the cases were exposed to ticks at locations outside their county of residence.

Five cases experienced symptoms and one case was asymptomatic. All five patients experienced a fever. Four of the five patients experienced headache, myalgia, chills, anorexia, and nausea. A macular rash was noted in two patients. Leukopenia (WBC $<4,000/mm^3$) was detected in three patients. All four patients with platelet counts showed a thrombocytopenia ($<150,000/mm^3$). The hematocrit and hemoglobin were low for age and sex in all five symptomatic patients.

All six patients were treated with doxycycline or tetracycline HCI. Four of the five symptomatic patients became afebrile within 24 hours after initiation of doxycycline or tetracycline HCI therapy. The fifth patient's fever slowly resolved over a ten-day period. None of the patients died.

Human infection with *Ehrlichia canis* or a very closely related agent has now been described in 13 patients in five states and appears to be widely distributed throughout the United States. Eleven percent of patients in our retrospective serosurvey of patients suspected of having Rocky Mountain spotted fever, and 14% in another survey, demonstrated at least four-fold rise or fall in titer to *E. canis* using paired serum samples. In areas where Rocky Mountain spotted fever is endemic, a significant proportion of patients with initial diagnosis of spotted fever may, in reality, be infected by E. *canis* or a very closely related agent.

VIRUS SURVEILLANCE

A virus surveillance system was established by the Bureau of Epidemiology in October 1982. This system collects viral isolate informa-tion from 20 laboratories in Texas. These laboratories are located in Austin, Dallas, Galveston, Houston, Lubbock, San Antonio, and Temple.

The number and type of viruses by month of specimen collection is presented in Table 10, and the temporal distributions of non-polio enteroviruses, 'influenza viruses, rotavirus, and respiratory syncytial virus (RSV) are evident. Influenza B virus was the epidemic influenza virus strain during early 1986, and influenza A(H1N1) virus was the epidemic strain in late 1986. Figures 45 through 48 illustrate the temporal patterns of selected viruses.

Table 11 presents the number and type of viruses by age of the patient. *Chlamydia trachomatis* results are included because virological laboratory techniques are used to identify the organism. Ninety-two percent (92%) of the patients with a *C. trachomatis* infection on ,whom age was known were 10 to 39 years of age. C. *trachomatis* was also identified in 42 infants, all less than four months of age; conjunctivitis was the reported diagnosis for 32 of these infants.

Similarly, adenoviruses were reported from 44 infants under one year of age; 50% experienced a respiratory tract infection, and 36% experienced gastroenteritis. The diagnosis was rcported for 26 of the 40 patients 20-39 years of age with an adenovirus infection. Thirteen (50%) of these 26 patients had acquired immune dcficiency syndrome (AIDS).

Sixty-three percent (63%) of the patients with an echovirus infection were children under five years of age, as were over 80% of parainfluenza virus (3), rotavirus, and RSV infections. Figures 49 through 52 illustrate the age distribution of patients with adenovirus, C. *trachomatis*, rotavirus, and RSV infections.

Enteroviruses were isolated from 278 of 286 (97.2%) patients reported with meningitis or encephalitis. Echovirus type 4 was the most commonly rcported virus in patients with these diagnoses. Sixty-five percent (65%) of the patients with enteroviral meningitis had onset of symptoms in May 'through August.

Table 10

Number of Viral Isolates by Month of Specimen Collection
Texas, **1986**

Virus	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Adenovirus	19	25	19	23	16	19	11	16	10	9	10	17	194
Chlamydia trachomatis	72	79	82	85	78	65	49	66	50	52	53	45	776
Cytomegalovirus	71	59	63	62	63	54	59	57	61	51	45	44	689
Coxsackie A Viruses	0	0	0	0	1	1	0	0	2	3	1	0	8
Coxsackie B Viruses	2	3	2	5	14	15	19	9	10	4	3	1	87
Echoviruses	5	2	10	11	40	62	60	41	42	33	33	25	364
Influenza A(H1N1)	0	1	0	1	0	0	0	0	0	3	37	210	252
Influenza A(H3N2)	20	29	7	1	0	0	0	0	0	0	0	0	57
Influenza B	225	173	35	0	2	3	0	0	0	0	2	0	440
Parainfluenza (3)	1	2	3	5	1	5	8	2	1	2	3	4	37
Polioviruses	7	1	5	12	6	7	3	7	6	3	2	5	64
Rotavirus	105	37	18	9	10	12	10	4	7	7	16	41	276
Respiratory Syncytial Virus	48	29	12	1	0	1	5	1	4	1	7	30	139
Varicella/Zoster	4	1	9	9	2	3	6	10	0	5	2	3	54

Table 11

Number of Viral Isolates by Age of Patient
Texas, 1986

Virus	<1	1-4	5-9	10-19	20-39	40-59	60+	Unk	Total
Adenovirus	44	43	8	6	40	10	2	41	194
Chlamydia trachomatis	42	1	1	324	193	2	0	213	776
Cytomegalovirus	72	42	9	24	274	116	15	137	689
Coxsackie A Viruses	1	2	1	1	2	0	0	1	8
Coxsackie B Viruses	36	10	4	5	8	1	1	22	87
Echoviruses	128	68	40	38	32	4	2	52	364
Influenza A(H1N1)	24	44	66	53	47	8	2	8	252
Influenza A(H3N2)	6	12	7	5	9	10	4	4	57
Influenza B	49	62	108	104	73	24	11	9	440
Parainfluenza (3)	15	12	2	1	2	1	0	4	37
Polioviruses	41	9	2	3	3	1	0	5	64
Rotaviruses	121	62	11	4	2	2	1	73	276
Respiratory Syncytial Virus	57	15	2	1	0	0	0	64	139
Varicella/Zoster	0	1	4	3	7	12	11	16	54

Echovirus type 4 and Echovirus type 11 represented 28% and 11% of reported non-polio enteroviruses, respectively. These two enteroviruses were also the two most commonly reported enteroviruses in 1985.

An influenza virus was identified in 77% of the patients with a respiratory tract infection during 1986. Eighty-seven percent (87%) of the patients with a respiratory tract infection experienced illness in the winter months, January, February, November, and December.

Acquired immune deficiency syndrome (AIDS) was the reported diagnosis for 167 patients, only two of whom were female. Three viruses were isolated from the AIDS patients: adenovirus, cytomegalovirus (CMV), and ECHO *6.* Adenoviruses were reported from 15 patients with AIDS, and 27 reports were received on these 15 patients. The urine (12) and stool (10) were the most frequent sites from which an adenovirus was cultured. CMV was reported from 161 patients with AIDS, including 10 patients with an adenovirus infection. CMV was reported most frequently from the urine (53%) and bronchial lavage (35%) in the AIDS patients. One patient with AIDS had an ECHO 6 infection.

Figure 45

Distribution of Non-Polio Enterovirus Isolates by Month of Specimen Collection, Texas - 1986

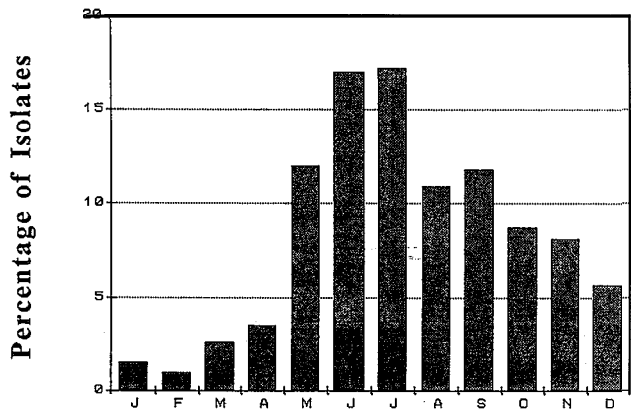


Figure 46

Distribution of Influenza Virus Isolates by Month of Specimen Collection, Texas - 1986

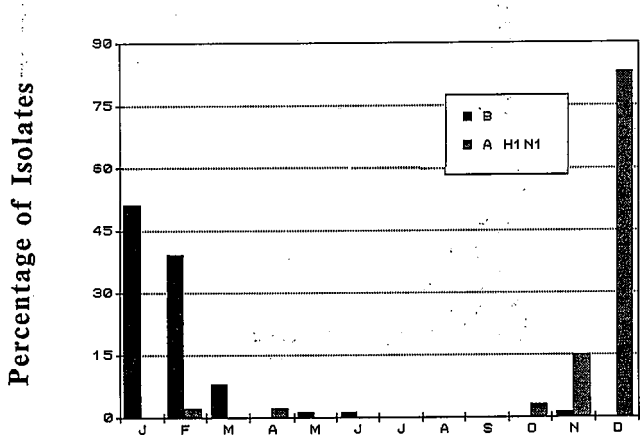


Figure 47

Distribution of Respiratory Syncytial Virus Isolates by Month of Specimen Collection, Texas - 1986

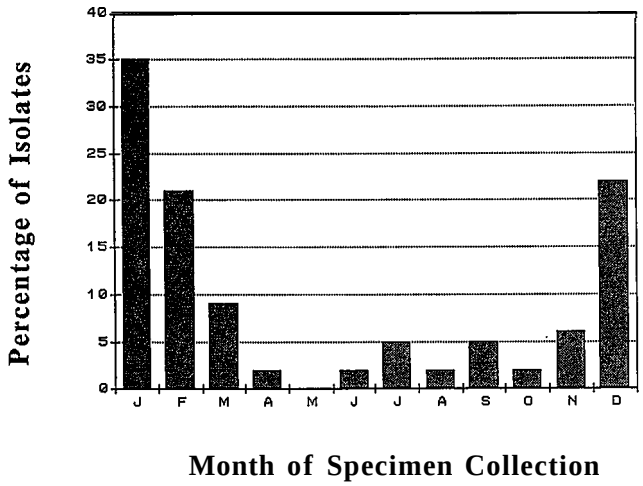


Figure 48

Distribution of Rotavirus Isolates by Month of Specimen Collection, Texas - 1986

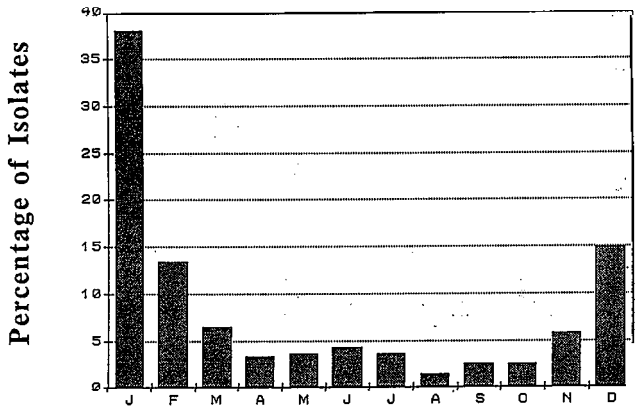


Figure 49

Distribution of Adenovirus Isolates by Age Group of Patient, Texas - 1986

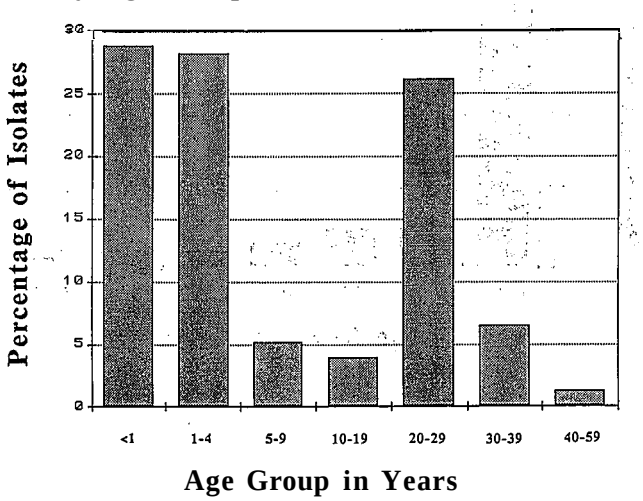


Figure 50

Distribution of Chlamydia trachomatis Isolates by Age Group of Patient, Texas - 1986

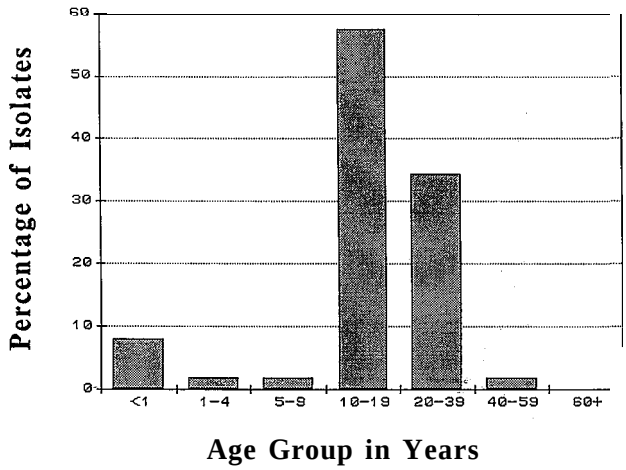


Figure 51

Distribution of Rotavirus Isolates by Age Group of Patient, Texas - 1986

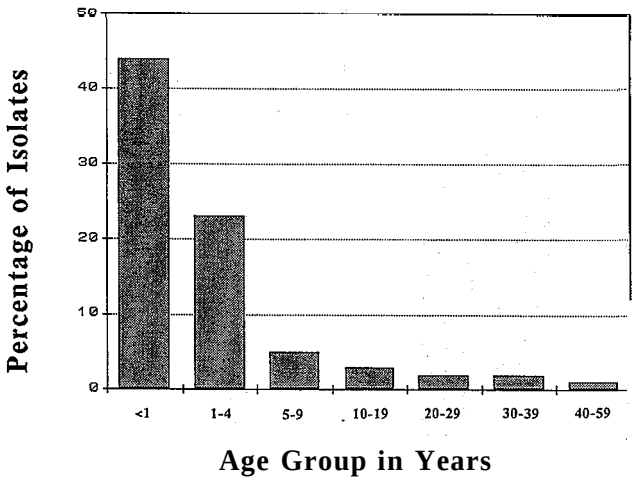
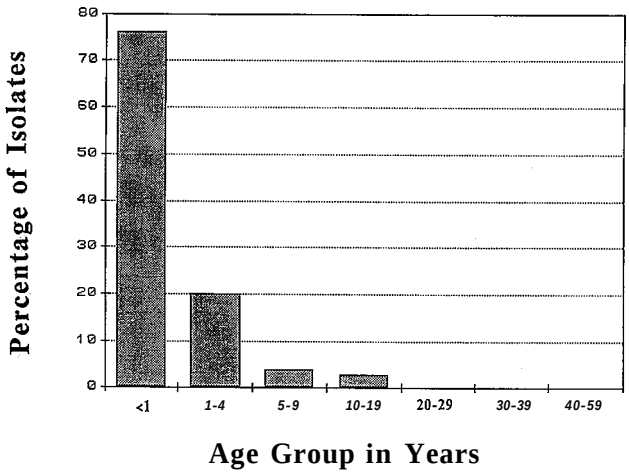


Figure 52

Distribution of Respiratory Syncytial Virus Isolates by Age Group of Patient, Texas - 1986



APPENDIX

TABLE I

REPORTED CASES OF SELECTED DISEASES IN TEXAS
1977-1986

DISEASE	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
AMEBIASIS	394	279	356	412	493	604	355	301	210	216
BOTULISM	5	4	9	3	1	4	0	3	4	1
BRUCELLOSIS	18	47	26	84	27	45	28	28	23	33
CAMPYLOBACTERIOSIS	803	666	198	-	-	-	-	-	-	-
CHICKENPOX	23221	20758	16124	15031	11050	10824	9478	7009	6163	8222
COCCIDIOIDOMYCOSIS	50	21	4	-	-	-	-	-	-	-
DENGUE	17	1	0	0	2	1	61	0	3	0
ENCEPHALITIS	191	142	15	16	11	11	34	39	15	9
GONORRHEA	63376	66728	65802	76903	81580	81822	80297	81828	88943	84789
HANSEN'S DISEASE	29	28	31	35	29	33	32	31	28	26
H. INFLUENZAE INFECTIONS	647	554	394	-	-	-	-	-	-	-
HEPATITIS A	2137	2565	2605	3030	3226	2721	2978	3289	2696	2086
HEPATITIS B	1500	1513	1544	1234	1043	823	819	685	586	650
HEPATITIS NA-NB	205	178	144	-	-	-	-	-	-	-
HEPATITIS UNSPECIFIED	854	1290	1695	2387	2071	1608	21%	1	1198	1064
HISTOPLASMOSIS	77	44	10	-	-	-	-	-	-	-
INFLWNZA & FLU-LIKE ILLNESS	83524	96164	176960	92160	93736	143955	99292	86689	99394	67094
LEGIONELLOSIS	41	29	24	-	-	-	-	-	-	-
LEPTOSPIROSIS	6	6	4	4	18	9	3	8	14	6
LISTERIR INFECTIONS	28	-	-	-	-	-	-	-	-	-
LYME DISEASE	9	-	-	-	-	-	-	-	-	-
MALARIA	84	93	77	54	55	87	115	45	33	27
MEASLES	398	450	642	37	129	851	181	670	1033	2032
MENINGITIS, ASEPTIC	1363	989	645	1175	785	622	432	753	405	315
MENINGITIS, OTHER/BACTERIAL	533	423	301	-	-	-	-	-	-	-
MENINGOCOCCAL INFECTIONS	138	132	180	188	238	327	145	166	144	147
MUMPS	239	321	219	225	255	227	212	908	1527	995
PERTUSSIS	112	379	60	95	79	91	82	104	132	75
PSITTACOSIS	4	1	9	7	8	9	8	5	5	6
RELAPSING FEVER	1	0	3	1	4	1	1	8	0	1
REYE SYNDROME	8	13	17	25	-	-	-	-	-	-
ROCKY MOUNTAIN SPOTTED FEVER	21	33	53	108	64	45	31	22	28	30
RUBELLA	78	52	75	117	120	176	131	212	407	776
SALMONELLOSIS	2445	2442	2339	2838	2506	2612	2456	2198	1199	1045
SHIGELLOSIS	2454	1718	1659	2206	2173	2299	2162	2299	1865	1565
SYPHILIS, PRIMARY/SECONDARY	3967	4610	5136	6254	6338	5329	3828	3154	2637	2123
TOXIC SHOCK SYNDROME	18	27	22	29	31	-	-	-	-	-
TETANUS	12	9	10	8	8	8	13	17	11	16
TRICHINOSIS	2	3	13	4	2	2	6	4	2	11
TUBERCULOSIS	1890	1891	1762	1965	2045	2015	2075	20%	2160	23261
TULAREMIA	8	8	3	13	16	23	12	11	6	11
TYPHOID FEVER	28	32	30	72	42	127	67	67	40	28
TYPHUS FEVER, MURINE	52	25	37	46	41	43	61	59	33	55

TABLE II

REPORTED CASES OF SELECTED DISEASES IN TEXAS PER 100,000 POPULATION
1977-1986

DISEASE	1986	1985	1984	1983	1982	1981	1980	1979	1978	19771
AMEBIASIS	2.35	1.73	2.27	2.68	3.30	4.11	2.49	2.25	1.61	1.68
BOTULISM	.03	.02	.06	.02	.01	.03	.00	.02	.03	.01
BRUCELLOSIS	.11	.29	.17	.55	.18	.31	.20	.21	.18	.26
CAMPYLOBACTERIOSIS	4.79	4.13	1.26	-	-	-	-	-	-	-
CHICKENPOX	138.60	128.70	102.70	97.95	73.94	73.73	66.61	52.36	47.23	63.93
COCCIDIOIDOMYCOSIS	.30	.13	.02	-	-	-	-	-	-	-
DENGUE	.10	.00	.00	.00	.01	.01	.43	.00	.02	.00
ENCEPHALITIS	1.14	.88	.72	1.04	1.05	.62	.44	.44	.36	.43
GONORRHEA	378.27	413.73	419.11	501.13	545.90	557.37	564.32	611.34	681.56	653.32
HANSEN'S DISEASE	.17	.17	.20	.23	.19	.22	.22	.23	.22	.20
H. INFLUENZAE INFECTIONS	3.86	3.43	3.34	-	-	-	-	-	-	-
HEPATITIS A	12.76	15.90	16.59	19.74	21.59	18.54	20.93	24.57	20.66	16.22
HEPATITIS B	8.95	9.38	9.83	8.04	6.98	5.61	5.76	5.12	4.50	5.05
IHEPRTITIS NR-NB	1.22	1.10	.92	-	-	-	-	-	-	-
HEPATITIS UNSPECIFIED	5.10	8.00	10.80	15.55	13.86	10.95	15.42	13.75	3.18	8.271
HISTOPLASMOSIS	.46	.27	.06	-	-	-	-	-	-	-
INFLUENZA & FLU-LIKE ILLNESS	498.53	596.24	1126.71	600.55	627.25	980.62	697.81	647.66	761.64	521.73
LEGIONELLOSIS	.24	.18	.15	-	-	-	-	-	-	-
LEPTOSPIROSIS	.04	6.00	4.00	4.00	18.00	9.00	3.00	8 .	14.00	6.00
LISTERIA INFECTIONS	.17	-	-	-	-	-	-	-	-	-
LYME DISEASE	.05	-	-	-	-	-	-	-	-	-
MEASLES	2.38	2.79	4.09	.24	.86	5.80	1.27	5.01	7.94	15.80
MENINGITIS, ASEPTIC	8.25	6.13	4.11	7.66	5.25	4.24	3.04	5.63	3.10	2.45
MENINGITIS, OTHER/BACTERIAL	3.18	2.62	1.92	-	-	-	-	-	-	-
MENINGOCOCCAL INFECTIONS	.82	.82	1.15	1.23	1.59	2.23	1.02	31.24	1.11	1.14
MUMPS	1.43	1.98	1.39	1.47	1.71	1.55	1.49	6.78	11.70	7.74
PERTUSSIS	.67	2.35	.38	.62	.53	.62	.58	.78	1.01	.58
PSITTACOSIS	.02	.00	.06	.05	.05	.06	.06	.04	.04	.05
RELAPSING F M R	.00	.00	.02	.01	.03	.01	.01	.06	.00	.01
REYE SYNDROME	.05	.08	.11	-	-	-	-	-	-	-
ROCKY MOUNTAIN SPOTTED FEVER	.13	.20	.34	.70	.43	.31	.22	.16	.22	.23
RUBELLA	.47	.32	.48	.76	.80	1.20	.92	1.58	3.13	6.03
SALMONELLOSIS	14.59	15.14	14.90	18.49	16.77	317.79	17.26	16.42	9.19	8.13
SHIGELLOSIS	14.65	10.65	10.57	14.38	14.54	15.66	15.19	17.18	14.29	12.17
SYPHILIS, PRIMARY/SECONDARY	23.68	28.58	32.71	40.75	42.41	36.30	26.90	24.30	28.20	16.51
TETANUS	.07	.06	.06	.05	.05	.05	.09	.13	.08	.12
TOXIC SHOCK SYNDROME	.11	.17	.14	-	-	-	-	-	-	-
TRICHINOSIS	.01	.02	.08	.03	.01	.01	.04	.03	.02	.09
TUBERCULOSIS	11.28	11.72	11.22	12.80	13.68	13.73	14.58	15.61	16.55	18.88
TULAREMIA	.05	.05	.06	.08	.11	.16	.08	.08	.05	.09
TYPHOID FEVER	.17	.20	.19	.47	.28	.87	.47	.50	.31	.22
TYPHUS FEVER, MURINE	.31	.16	.24	.30	.27	.33	.43	.44	.25	.43

TABLE III

DERTHS FROM SELECTED DISEASES RRD CONDITIONS IN TEXAS
1977-1986

DISEASE	ICD CODES	1986	1385	1984	1583	1982	1981	1380	1373	1978	1377
AIDS	273.1	323	154	75	24	-	-	-	-	-	-
AMEBIASIS	006	1	2	2	4	1	2	6	5	2	4
BOTULISM	005.1	4	a	1	0	a	0	e	0	1	0
BRUCELLOSIS	023	0	0	0	a	0	0	a	a	0	a
CHICKENPOX	052	7	0	6	6	4	5	7	5	7	6
COCCIDIOIDOMYCOSIS	114	6	3	3	4	5	7	2	4	4	5
CONGENITAL RUBELLA SYNDROME	771.0	0	0	1	8	1	0	0	0	0	1
DIPHTHERIA	032	a	a	0	a	0	0	1	0	0	1
ENCEPHALITIS	049	14	10	5	8	12	11	16	3	12	16
GONORRHEA	098	1	1	0	0	8	0	1	1	2	1
HANSEN'S DISEASE	030	0	0	0	0	1	0	0	0	2	/
HEPATITIS A	070.0-070.1	2	12	6	8	10	2	8	8	33	34
HEPATITIS B	070.2-070.3	26	33	36	39	23	19	23	14	11	6
HEPATITIS UNSPECIFIED	070.4-070.9	21	22	21	27	25	28	30	13	49	63
HISTOPLASMOSIS	115	20	3	6	4	6	6	7	4	7	2
INFLUENZA & FLU-LIME ILLNESS	487	55	76	125	67	23	133	70	30	190	64
LEPTOSPIROSIS	100	1	0	0	0	0	1	0	3	0	1
MALARIA	084	0	0	0	0	a	0	0	0	0	a
MEASLES	055	0	a	1	a	0	a	0	1	1	3
MENINGITIS, ASEPTIC	a47	3	1	3	1	1	2	2	2	a	0
MENINGITIS, OTHER/BACTERIAL	320-322	92									
MENINGOCOCCAL INFECTIONS	036	12	13	18	12	26	34	24	27	37	25
MUMPS	072	0	a	a	0	0	0	0	0	1	e
MYCOBACTERIA INFECTIONS	031	30	18	14	15	8	9	8	8	6	4
PERTUSSIS	a33	a	a	4	1	a	a	a	a	0	/
POLIOMYELITIS, ACUTE	045	a	0	1	a	1	a	a	a	0	0
REYE SYNDROME	331.8	4	13	8	15	7	24	17	13	-	-
ROCKY MOUNTAIN SPOTTED FEVER	082.0	0	a	4	4	0	1	0	1	0	1
RUBELLA	056	1	0	a	a	0	0	0	0	a	2
SALMONELLOSIS	003	6	4	5	4	3	8	5	2	3	3
SHIGELLOSIS	004	0	4	1	2	0	a	0	1	6	7 1
STREP THROAT, SCARLET FEVER	034	0	1	1	0	0	0	1	2	0	4
SYPHILIS, TOTAL	090-097	4	4	7	8	5	13	12	12	15	13
TETANUS, INCLUDING NEONATAL	037,771.3	2	4	0	1	2	4	5	6	4	9
TRICHINOSIS	124	0	0	0	0	0	0	a	0	0	0
TUBERCULOSIS	010-018	136	187	120	136	113	134	111	112	163	1761
TULAREMIA	021	0	a	0	a	0	a	a	/	a	a
TYPHOID FEVER	082.0	1	0	0	0	0	0	1	1	0	0
TYPHUS FEVER, MURINE	081.0	0	2	0	0	0	0	0	0	0	0

TABLE IV

REPORTED CASES OF SELECTED DISEASES BY MONTH OF ONSET
TEXAS, 1986

DISEASE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
AMEBIASIS	32	30	23	44	44	29	41	45	39	31	27	9
BOTULISM	0	0	0	0	1	0	1	0	2	0	1	0
BRUCELLOSIS	2	1	1	4	1	2	1	0	2	2	1	1
CAMPYLOBACTERIOSIS	36	22	32	58	108	101	85	74	82	82	64	59
CHICKENPOX	752	2678	5663	3347	5180	2844	338	389	129	204	599	1105
COCCIDIOIDOMYCOSIS	8	2	3	8	4	9	3	0	5	6	2	0
DENGUE	0	0	0	0	0	0	1	5	5	3	3	0
ENCEPHALITIS	13	6	8	17	13	19	23	42	20	11	9	10
GONORRHEA *	4960	4624	4873	5868	5260	4834	6181	5608	5538	5013	4653	5964
HANSEN'S DISEASE	1	6	6	4	2	3	3	1	2	0	1	0
H. INFLUENZAE INFECTIONS	54	57	42	49	29	49	38	25	52	70	87	95
HEPATITIS A	226	200	196	162	155	138	166	184	225	223	130	132
HEPATITIS B	145	127	116	136	131	135	131	122	116	131	117	93
HEPATITIS NA-NB	17	9	20	15	29	22	22	17	19	18	8	9
HEPATITIS UNSPECIFIED	82	88	84	88	82	67	77	52	72	64	45	53
HISTOPLASMOSIS	7	7	6	11	10	7	6	2	4	10	4	3
LEGIONELLOSIS	2	6	5	1	5	2	1	7	3	5	3	1
LEPTOSPIROSIS	0	0	1	0	1	0	1	1	2	0	0	0
LISTERIOSIS	0	0	1	1	0	0	2	1	6	6	5	6
LYME DISEASE	0	0	0	1	0	0	1	4	0	1	2	0
MALARIA	10	2	3	5	15	9	8	13	8	6	2	3
MEASLES	20	17	29	118	135	41	28	8	2	0	0	0
MENINGITIS, ASEPTIC	33	34	32	69	172	231	188	172	125	158	117	52
MENINGITIS, OTHER/BACTERIAL	38	34	40	65	71	69	39	33	38	39	32	35
MENINGOCOCCAL INFECTIONS	16	14	15	14	8	9	9	11	4	15	10	13
MUMPS	25	28	25	18	33	3	8	10	35	18	21	15
PERTUSSIS	8	4	10	11	5	21	17	19	9	1	4	3
PSITTACOSIS	2	0	0	0	2	0	0	0	0	0	0	0
RELAPSING FEVER	0	0	0	1	0	0	0	0	0	0	0	0
REYE SYNDROME	0	3	2	0	2	0	0	0	0	0	0	1
RMSF	2	0	0	4	4	3	3	2	2	0	0	1
RUBELLA	14	13	14	18	5	0	1	4	3	3	0	0
SALMONELLOSIS	117	86	107	124	161	263	261	336	359	316	166	149
SHIGELLOSIS	124	62	72	83	111	144	421	308	666	191	168	104
SYPHILIS, PRIMARY/SECONDARY *	289	335	347	364	361	267	367	316	353	340	269	359
TOXIC SHOCK SYNDROME	1	3	2	1	0	3	3	1	1	3	0	0
TETANUS	0	0	0	0	6	1	2	0	0	3	0	0
TRICHINOSIS	1	0	0	1	0	0	0	0	0	0	0	0
TUBERCULOSIS *	167	134	165	154	155	182	178	139	158	168	148	142
TULAREMIA	0	0	1	1	0	2	1	0	1	0	2	0
TYPHOID FEVER	2	1	4	5	0	1	4	4	4	3	0	0
TYPHUS FEVER, MURINE	3	3	1	3	17	5	3	2	5	6	2	2

* TOTALS ARE BY MONTH OF REPORT RATHER THAN MONTH OF ONSET

TABLE V

REPORTED CASES OF SELECTED DISEASES BY AGE GROUP
TEXAS, 1986

DISEASE	TOTAL 1986	< 1	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60+	UNK
AMEBIASIS	394	28	38	47	20	12	72	68	27	24	23	35
BOTULISM	5	4	0	0	0	0	0	0	0	0	1	0
BRUCELLOSIS	18	0	0	0	1	1	4	6	1	1	4	0
CAMPYLOBACTERIOSIS	803	85	129	49	24	36	195	127	57	28	57	16
CHICKENPOX *	23221	298	3122	8054	1317	695	*	*	*	*	*	3691
COCCIDIDIDOMYCOSIS	50	0	1	0	0	0	12	7	5	7	12	6
DENGUE	17	0	0	1	0	1	2	4	3	1	5	0
ENCEPHALITIS	191	7	15	16	11	11	34	38	15	9	34	0
GONORRHEA	63376	0	60	43	722	15888	36264	8574	1358	350	117	-
HANSEN'S DISEASE	29	0	0	0	0	2	6	5	3	7	6	0
H. INFLUENZAE INFECTIONS	647	296	227	20	4	5	5	8	5	15	60	2
HEPATITIS A	2137	3	155	352	222	195	689	285	87	58	55	36
HEPATITIS B	1500	2	5	13	12	166	687	318	107	55	90	45
HEPATITIS NA-NB	205	0	6	3	5	20	65	48	15	10	29	4
HEPATITIS UNSPECIFIED	854	5	34	125	55	69	299	148	50	23	34	12
HISTOPLASMOSIS	77	0	0	0	0	1	14	25	13	7	17	0
LEGIONELLOSIS	41	0	0	0	1	0	2	5	4	7	19	3
LEPTOSPIROSIS	6	0	0	0	0	0	2	1	1	1	1	0
LISTERIOSIS	28	3	1	1	0	0	3	3	3	2	10	2
LYME DISEASE	9	0	0	1	0	0	3	2	1	2	0	0
MALARIA	84	0	10	6	7	4	23	22	5	6	0	1
MEASLES	398	50	125	32	109	65	11	6	0	0	0	0
MENINGITIS, ASEPTIC	1383	364	176	157	104	95	235	142	28	16	16	50
MENINGITIS, OTHER/BACTERIAL	533	155	68	44	15	18	56	56	43	21	52	5
MENINGOCOCCAL INFECTIONS	138	41	36	11	6	14	8	9	2	3	7	1
MUMPS	239	3	26	92	57	30	12	8	5	1	2	3
PERTUSSIS	112	73	23	4	3	2	3	1	1	1	1	0
PSITTACOSIS	4	0	0	0	0	0	3	0	1	0	0	0
RELAPSING FEVER	1	0	0	0	0	0	1	0	0	0	0	0
REYE SYNDROME	8	4	1	0	2	1	0	0	0	0	0	0
RMSF	21	1	6	1	1	1	3	3	4	0	1	0
RUBELLA	78	17	18	10	4	7	15	4	1	0	0	2
SALMONELLOSIS	2445	604	458	149	67	67	205	190	105	85	227	288
SHIGELLOSIS	2454	67	706	380	97	104	388	268	116	64	82	184
SYPHILIS, PRIMARY/SECONDARY	3967	0	1	3	21	444	2071	1033	256	98	40	-
TETANUS	12	1	0	0	0	1	1	2	0	1	6	0
TOXIC SHOCK SYNDROME	18	0	0	0	2	7	4	3	0	0	2	0
TRICHINOSIS	2	0	0	0	0	0	1	1	0	0	0	0
TUBERCULOSIS	1890	2	70	26	18	41	319	369	252	253	540	-
TULAREMIA	8	0	0	1	2	1	1	1	0	0	2	0
TYPHOID FEVER	28	0	1	2	1	4	12	7	1	0	0	0
TYPHUS FEVER, MURINE	52	0	1	0	5	6	6	12	3	10	9	0

* TOTAL FOR 15-19 CHICKENPOX INCLUDES ALL CASES 15 YEARS OF AGE AND OLDER

TABLE VI

REPORTED CASES OF SELECTED DISEASES PER 100,000 POPULATION
BY AGE GROUP, TEXAS - 1986

DISEASE	TOTAL 1986	< 1	1-4	5-9	10-14	15-19	20-29	30-39	40-49	50-59	60+	UNK
AMEBIASIS	2.35	10.48	3.34	3.35	1.54	.89	2.51	2.40	1.38	1.72	1.02	-
BOTULISM	.03	1.50	.00	.00	.00	.00	.00	.00	.00	.00	.04	-
BRUCELLOSIS	.11	.00	.00	.00	.08	.07	.14	.21	.05	.07	.18	-
CAMPYLOBACTERIOSIS	4.79	31.81	11.33	3.49	1.85	2.68	6.80	4.49	2.92	2.01	2.52	-
CHICKENPOX *	138.60	111.51	274.19	576.69	101.46	5.53	*	*	*	*	*	-
COCCIDIOIDOMYCOSIS	.30	.00	.09	.00	.00	.00	.42	.25	.26	.50	.53	-
DENGUE	.10	.00	.00	.07	.00	.07	.07	.14	.15	.07	.22	-
ENCEPHALITIS	1.14	2.62	1.32	1.14	.85	.82	1.19	1.38	.77	.65	1.50	-
GONORRHEA	378.27	.00	5.27	3.06	55.62	1182.70	1264.34	303.19	69.48	25.14	5.18	-
HANSEN'S DISEASE	.17	.00	.00	.00	.00	.15	.21	.18	.15	.50	.27	-
H. INFLUENZAE INFECTIONS	3.86	110.77	19.94	1.42	.31	.37	.17	.28	.26	1.08	2.65	-
HEPATITIS A	12.76	1.12	13.61	25.08	17.10	14.52	24.02	10.08	4.45	4.17	2.43	-
HEPATITIS B	8.95	.75	.44	.93	.92	12.36	23.95	11.24	5.47	3.95	3.98	-
HEPATITIS NA-NB	1.22	.00	.53	.21	.39	1.49	2.27	1.70	.77	.72	1.28	-
HEPATITIS UNSPECIFIED	5.10	1.87	2.99	8.91	4.24	5.14	10.42	5.23	2.56	1.65	1.50	-
HISTOPLASMOSIS	.46	.00	.00	.00	.00	.07	.49	.88	.67	.50	.75	-
LEGIONELLOSIS	.24	.00	.00	.00	.08	.00	.07	.18	.20	.50	.84	-
LEPTOSPIROSIS	.04	.00	.00	.00	.00	.00	.07	.04	.05	.07	.04	-
LISTERIOSIS	.17	1.12	.09	.07	.00	.00	.10	.11	.15	.14	.44	-
LYME DISEASE	.05	.00	.00	.07	.00	.00	.10	.07	.05	.14	.00	-
MALARIA	.50	.00	.88	.43	.54	.30	.80	.78	.26	.43	.00	-
MEASLES	2.38	18.71	10.98	2.28	8.40	4.84	.38	.21	.00	.00	.00	-
MENINGITIS, ASEPTIC	8.25	136.21	15.46	11.19	8.01	7.07	8.19	5.02	1.43	1.15	.71	-
MENINGITIS, OTHER/BACTERIAL	3.18	58.00	5.97	3.13	1.16	1.34	1.95	1.98	2.20	1.51	2.30	-
MENINGOCOCCAL INFECTIONS	.82	15.34	3.16	.78	.46	1.04	.28	.32	.10	.22	.31	-
MUMPS	1.43	1.12	2.28	6.55	4.39	2.23	.42	.28	.26	.07	.03	-
PERTUSSIS	.67	27.32	2.02	.28	.23	.15	.10	.04	.05	.07	.04	-
PSITTACOSIS	.02	.00	.00	.00	.00	.00	.10	.00	.05	.00	.00	-
RELAPSING FEVER	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	-
REYE SYNDROME	.05	1.50	.09	.00	.15	.07	.00	.00	.00	.00	.00	-
RMSF	.13	.37	.53	.07	.08	.07	.10	.11	.20	.00	.04	-
RUBELLA	.47	6.36	1.58	.71	.31	.52	.52	.14	.05	.00	.00	-
SALMONELLOSIS	14.59	226.02	40.22	10.62	5.16	4.99	7.15	6.72	5.37	6.10	10.04	-
SHIGELLOSIS	14.65	25.07	62.00	27.07	7.47	7.74	13.53	9.48	5.94	4.60	3.54	-
SYPHILIS, PRIMARY/SECONDARY	23.68	.00	.09	.21	1.62	33.05	72.21	36.53	13.10	7.04	1.77	-
TETANUS	.07	.37	.00	.00	.00	.07	.03	.07	.00	.07	.27	-
TOXIC SHOCK SYNDROME	.11	.00	.00	.00	.15	.52	.14	.11	.00	.00	.03	-
TRICHINOSIS	.01	.00	.00	.00	.00	.00	.03	.04	.00	.00	.00	-
TUBERCULOSIS	11.28	.75	6.15	1.85	1.39	3.05	11.12	13.05	12.89	18.17	23.89	.
TULAREMIA	.05	.00	.00	.07	.15	.07	.03	.04	.00	.00	.09	-
TYPHOID FEVER	.17	.00	.09	.14	.08	.30	.42	.25	.05	.00	.00	-
TYPHUS FEVER, MURINE	.31	.00	.09	.00	.39	.45	.21	.42	.15	.72	.40	-

* RATE FOR CHICKENPOX FOR 15-19 INCLUDES ALL CASES 15 YEARS OF AGE AND OLDER

TABLE VII

REPORTED CASES OF SELECTED DISEASES BY PUBLIC HEALTH REGION
TEXAS, 1986

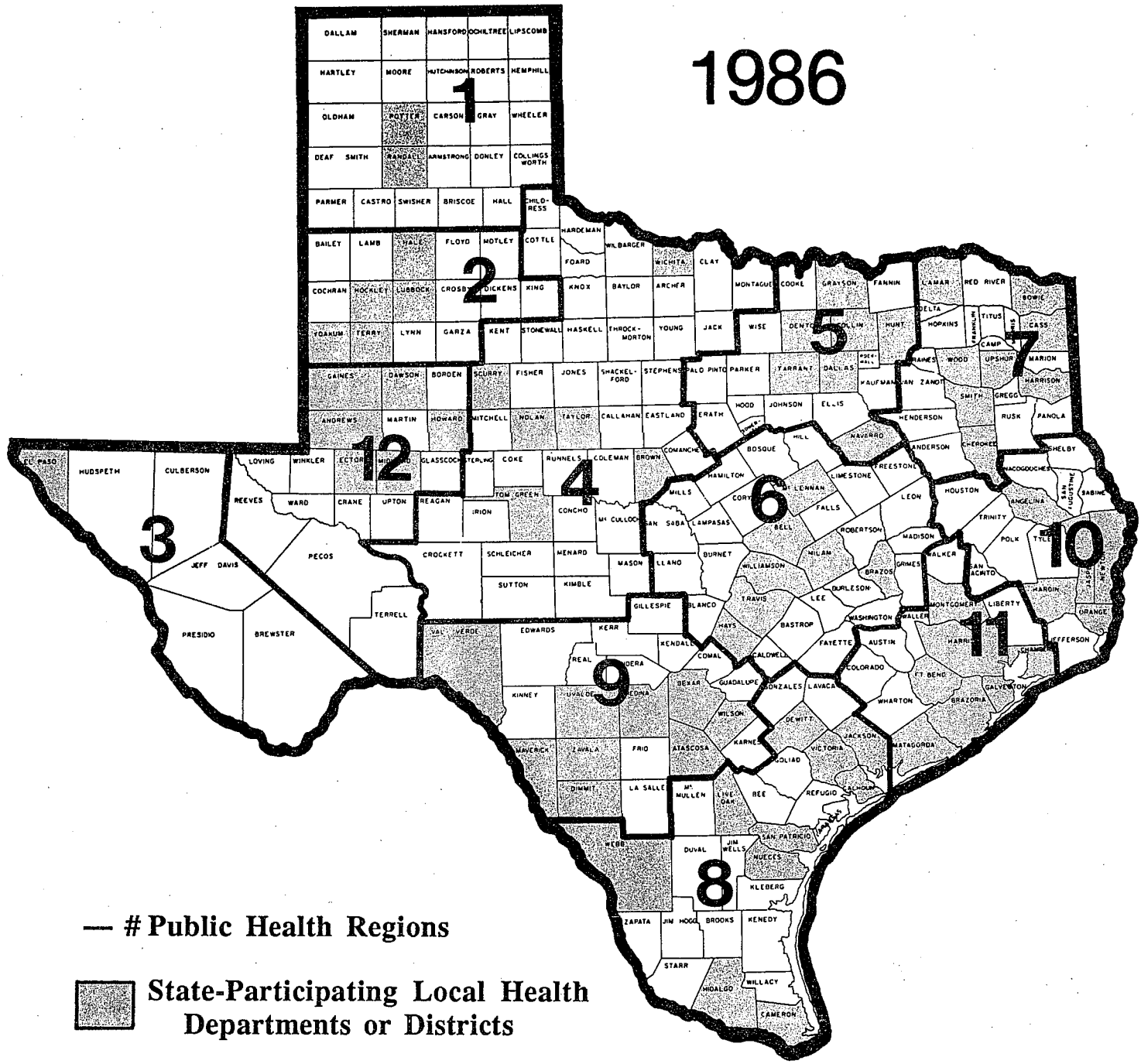
DISEASE	TOTRL 1986	PAR 1	PHR 2	PHR 3/12	PHR 4	PHR 5	PHR 6	PHR 7/10	PHR 8	PHR 9	PHR 11
AMEBIASIS	334	5	5	24	4	66	64	0	118	38	78
BOTULISM	5	1	0	,	8	2	0	0	0	0	1
BRUCELLOSIS	18	0	0	0	0	2	0	5	9		2
CAMPYLOBACTERIOSIS	803	28	19	80	22	109	115	33	33	66	297
CHICKENPOX	23221	238	171	2265	621	5762	1562	1964	2812	2358	5448
COCCIDIOIDOMYCOSIS	50	2	1	16	1	3	8	a	7	-	5
DENGUE	17	0	0	a	0	0	0	a	16		0
ENCEPHALITIS	131	4	9	3	4	39	7	22	8,	22	73
GONORRHEA	63376	1278	1268	3328	1623	28739	6098	5399	1789	4187	17727
HANSEN'S DISEASE	29	3	0	a	0	5	2	2	9	4	4
H INFLUENZAE INFECTIONS	647	13	18	23	25	186	72	28	36	61	146
HEPATITIS A	2137	62	77	292	175	673	188	54	169	263	178
HEPATITIS B	1500	23	37	153	54	458	104	77	115	157	317
HEPRTITIS NA-NB	265	8	3	13	3	59	17	10	11	19	57
HEPATITIS UNSPECIFIED	854	7	22	62	16	335	36	4%	146	50	140
HISTOPLASMOSIS	77	1	1	1	0	15	18	5	4	1	31
INFLUENZR	83524	4098	2858	4472	6335	17138	3358	6465	15554	7535	15051
LEGIONELLOSIS	41	1	2	3	2	5	1	5	3	3	16
LEPTOSPIROSIS	6	0	0	0	1	3		1	0	0	0
LISTERIOSIS	28	1	1	1	1	7	3	1	1	4	8
LYME DISEASE	9	0	0	0	1	8	a	0	0	0	0
MALARIA	84	3	a	a	0	28	4	2	3	9	30
MEASLES	398	0	0	37	0	139	4	120	17	11	10
MENINGITIS, ASEPTIC	1383	8	32	16	26	273	129	114	21	125	634
MENINGITIS, OTHER/BACTERIAL	533	5	14	8	3	168	42	24	23	27	203
MENINGOCOCCAL INFECTICNS	138	1	5	2	7	49	15	18	11	10	20
MUMPS	239	7	9	27	1	61	14	10	33	19	58
PERTUSSIS	112	1	8	6	-	22	18	14	6	11	19
PSITTACOSIS	4	0	9	0	0	8	0	0	1	1	2
RELAPSING FEVER	1	0	0	a	9	0	1	0	0	0	0
REYE SYNDROME	8	2	1	1	0	0	1	1	2	0	0
RMSF	21	0	0	0	1	5	3	8	1	0	3
RUBELLA	78	2	15	7	1	13	19	6	3	1	6
SALMONELLOSIS	2445	62	60	173	85	592	245	213	365	124	580
SHIGELLOSIS	2454	131	35	594	73	353	190	59	207	238	574
SYPHILIS, PRIMARY/SECONDARY	3967	43	184	179	41	1548	273	300	118	329	1069
TETANUS	12	0	1	2	a	2	2	1	2	2	a
TOXIC SHOCK SYNDROME	18	0	0	2	0	18	1	0	1	1	3
TRICHINOSIS	2	0	a	0	a	1	1	0	0	0	0
TUBERCULOSIS	1850	14	16	102	26	403	114	138	251	155	6651
TULAREMIA	8	0	0	1	0	1	0	2	3	1	a
TYPHOID FEVER	28	0	1	2	0	8	1	8	6	2	8
TYPHUS FEVER, ENDEMIC	52	0	0	0	4	1	a	1	43	1	0

TABLE VIII

REPORTED CASES OF SELECTED DISEASES PER 100,000 POPULATION
BY PUBLIC HEALTH REGION, TEXAS - 1986

DISEASE	TOTAL 1986	PHR 1	PHR 2	PHR 3/12	PHR 4	PHR 5	PHR 6	PHR 7/10	PHR 8	PHR 9	PHR 11
AMEBIASIS	2.35	1.24	1.30	2.40	.55	1.72	3.89	.00	7.71	1.93	1.95
BOTULISM	.03	.25	.00	.10	.00	.05	.00	.00	.00	.00	.02
BRUCELLOSIS	.11	.00	.00	.00	.00	.05	.00	.30	.52	.06	.05
CAMPYLOBACTERIOSIS	4.79	6.94	4.94	7.98	3.01	2.64	6.99	2.35	2.48	4.23	7.17
CHICKENPOX	138.60	58.95	44.42	228.05	85.06	149.96	95.00	118.34	183.66	151.93	136.05
COCCIDIOIDOMYCOSIS	.30	.50	.26	1.60	.14	.08	.49	.00	.46	.43	.12
DENGUE	.10	.00	.00	.00	.00	.00	.00	.00	1.04	.06	.00
ENCEPHALITIS	1.14	.99	2.34	.30	.55	1.01	.43	1.33	.52	1.42	1.82
GONORRHEA	378.27	316.57	329.35	332.14	222.32	539.74	370.89	325.30	112.93	269.88	442.67
HANSEN'S DISEASE	.17	.74	.00	.00	.00	.13	.12	.12	.59	.26	.10
H. INFLUENZAE INFECTIONS	3.86	3.22	4.68	2.30	3.42	4.84	4.36	1.69	2.35	3.93	3.65
HEPATITIS A	12.76	15.36	20.00	29.14	23.97	17.67	11.43	3.25	11.04	16.55	4.44
HEPATITIS B	8.95	5.70	9.61	15.27	8.08	11.92	6.33	4.64	7.51	10.12	7.92
HEPATITIS NA-NB	1.22	1.98	.78	1.30	1.10	1.54	1.03	.60	.72	1.22	1.42
HEPATITIS UNSPECIFIED	5.10	1.73	5.71	6.13	2.13	8.72	2.19	2.41	9.54	3.22	3.50
HISTOPLASMOSIS	.46	.25	.26	.10	.00	.39	1.09	.30	.26	.06	.77
INFLUENZA	498.53	1015.10	742.34	446.31	867.76	447.58	240.73	389.53	1015.87	485.67	375.85
LEGIONELLOSIS	.24	.25	.52	.30	.27	.13	.06	.30	.20	.13	.40
LEPTOSPIROSIS	.04	.00	.00	.00	.14	.08	.06	.06	.00	.00	.02
LISTERIOSIS	.17	.25	.26	.10	.14	.18	.18	.06	.07	.26	.20
LYME DISEASE	.05	.00	.00	.00	.14	.21	.00	.00	.00	.00	.00
MALARIA	.50	.74	.00	.00	.00	.73	.55	.12	.20	.58	.75
MEASLES	2.38	.00	.00	9.68	.00	3.62	.24	7.23	1.11	.71	.25
MENINGITIS, ASEPTIC	8.25	1.98	8.31	1.60	3.56	7.10	7.85	7.17	1.37	8.06	15.63
MENINGITIS, OTHER/BACTERIAL	3.18	1.24	3.64	.80	1.23	4.68	2.55	1.45	1.37	1.74	5.07
MENINGOCOCCAL INFECTIONS	.82	.25	1.30	.20	.96	1.28	.91	1.08	.72	.64	.50
MUMPS	1.43	1.73	2.34	2.69	.14	1.59	.85	.60	2.16	1.22	1.45
PERTUSSIS	.67	.25	2.08	.60	.96	.57	1.09	.84	.33	.71	.47
PSITTACOSIS	.02	.00	.00	.00	.00	.00	.00	.00	.07	.06	.05
RELAPSING FEVER	.00	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00
REYE SYNDROME	.05	.50	.26	.10	.00	.00	.06	.06	.13	.00	.00
RMSF	.13	.00	.00	.00	.14	.13	.18	.48	.07	.00	.07
RUBELLA	.47	.50	3.90	.70	.14	.47	1.16	.36	.20	.06	.15
SALMONELLOSIS	14.59	15.36	15.58	17.27	11.64	15.41	14.90	13.20	19.92	7.99	14.48
SHIGELLOSIS	14.65	32.45	9.09	59.28	10.00	9.19	11.56	3.55	13.52	15.34	14.33
SYPHILIS, PRIMARY/SECONDARY	23.68	10.65	27.01	16.97	5.62	40.08	16.60	18.08	7.71	19.92	26.69
TETANUS	.07	.00	.26	.20	.00	.05	.12	.06	.13	.13	.00
TOXIC SHOCK SYNDROME	.11	.00	.00	.20	.00	.26	.06	.00	.07	.06	.07
TRICHINOSIS	.01	.00	.00	.00	.00	.03	.06	.00	.00	.00	.00
TUBERCULOSIS	11.28	3.47	4.16	10.18	3.56	10.64	6.53	8.31	16.39	9.99	16.61
TULAREMIA	.05	.00	.00	.10	.00	.03	.00	.12	.20	.06	.00
TYPHOID FEVER	.17	.00	.26	.20	.00	.21	.06	.00	.39	.13	.20
TYPHUS FEVER, ENDEMIC	.31	.00	.00	.00	.55	.03	.00	.06	2.94	.06	.00

Texas Department of Health
Public Health Regions
and
State-Participating Local Health Departments



REPORTABLE DISEASES IN TEXAS

The Communicable Disease Prevention and Control Act (Texas Civil Statutes, Article 4419b-1) requires physicians, dentists, and veterinarians 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

BY NAME, CITY, AGE, SEX, RACE/ETHNICITY, DISEASE, TYPE OF DIAGNOSIS, DATE OF ONSET, AND PHYSICIAN:

To the Infectious Diseases Program,
Texas Department of Health, in Austin
(CALL TOLL-FREE 1-800-252-8239)

- Botulism (adult)
- Cholera
- Plague
- Rabies in Man
- Yellow Fever

To the Immunization Division,
Texas Department of Health, in Austin
(CALL TOLL-FREE 1-800-252-9152)

- Diphtheria
- Measles
- Pertussis
- Polio, paralytic
- Rubella

All of the other diseases listed below are to be reported to your local health authority, who will in turn report them to the Texas Department of Health.[1]

DISEASES REPORTABLE ON A WEEKLY BASIS

BY NAME, CITY, AGE, SEX, RACE/ETHNICITY, DISEASE, TYPE OF DIAGNOSIS, DATE OF ONSET, AND PHYSICIAN:

- Acquired Immune Deficiency Syndrome (AIDS)
- Acute Occupational Pesticide Poisoning[2]
- Amebiasis
- Anthrax
- Asbestosis[2]
- Botulism (infant)
- Brucellosis
- Campylobacteriosis
- Chlamydia trachomatis infections (laboratory confirmed only)[3]
- Coccidioidomycosis
- Dengue
- Elevated Blood Lead in Adults (blood lead ≥40 mcg/dl in persons ≥15 years of age)[2]
- Encephalitis (specify etiology)
- Gonorrhea[3]
- Haemophilus influenzae Infections (systemic)[4]
- Hansen's disease (leprosy)
- Hepatitis, Viral
  - Type A
  - Type B
  - Type D (delta agent)
  - Non-A, Non-B
  - Unspecified
- Histoplasmosis
- Legionellosis
- Leptospirosis
- Listeria Infections
- Lyme Disease
- Malaria
- Meningitis
  - Aseptic/Viral
  - Bacterial (specify etiology)
  - Fungal
  - Other
- Meningococcal Infections
- Mumps
- Psittacosis
- Q Fever
- Reye Syndrome
- Rocky Mountain Spotted Fever
- Rubella, Congenital Syndrome
- Salmonellosis
- Shigellosis
- silicosis[2]
- syphilis[3]
- Tetanus
- Toxic Shock Syndrome
- Trichinosis
- Tuberculosis[5]
- Tularemia
- Typhoid Fever
- Typhus Fever
  - Endemic (murine)
  - Epidemic
- Vibrio Infections (specify species)
- Viral Hemorrhagic Fever

BY NUMBER ONLY:

- Influenea & Flu-like Illnesses

BY NUMBER AND AGE GROUP ONLY:

- Chickenpox

BY NUMBER, AGE GROUP, AND SEX ONLY:

- Human Immunodeficiency Virus (HIV) Infections[6]

In addition to the requirements of individual case reports, any unusual outbreak of disease of public health concern shall be reported to the Texas Department of Health in Austin through the local health authority or to the State Epidemiologist directly by the most expeditious means.

[1] The local health authority or regional director shall collect reports of disease and transmit them at weekly intervals to the Texas Department of Health. Transmittal may be by telephone, mail, or electronic transmission.

[2] The Occupational Disease Reporting Act, Article 5182c, Texas Civil Statutes, requires physicians and directors of laboratories to report these occupationally related diseases to the Texas Department of Health.

[3] Syphilis, gonorrhea, and laboratory-confirmed Chlamydia trachomatis infections are reportable in accordance with Sections 97.132, 97.134, and 97.135 of 25 TAC. Form STD-27, "Confidential Report of Sexually Transmitted Disease," shall be used to report these sexually transmitted diseases.

[4] Includes meningitis, septicemia, cellulitis, epiglottitis, osteornyelitis, pericarditis, septic arthritis, and pneumonia.

[5] Report tuberculosis on form TB-400, "Report of Case and Patient Services."

[6] Reported by physician only once per case, following initial physician diagnosis.

6-101a 9/87

NOTIFIABLE DISEASE REPORT

Disease	Date of Onset	Patient Information (Last name, first)	Age	Sex	Race	Type of Diagnosis
		NAME CITY PHYSICIAN				
		NAME CrrY PHYSICIAN				
		NAME CrrY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CrrY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CrrY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CrrY PHYSICIAN				

Report number by sex and by age group

Human immunodeficiency virus (HIV) infections	Sex	0-4 yr	5-9	10-14	15-19	20-29	30-39	40-49	50+	UNK
	Male									
	Female									

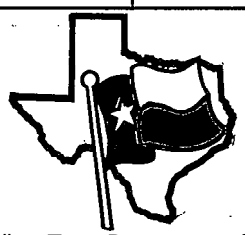
Report by number of cases per age group

Chickenpox	<1 yr	1-4	5-9	10-14	15+	UNK	TOTAL

Influenza G Flu-like Illness (report by number): _____

OCCUPATIONAL DISEASES

Disease	Date of Diagnosis	Patient Information (Last name, first)	Age	Sex	Race	Agency Use
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				



USE THE FOLLOWING CODES

RACE/ETHNICITY		TYPE OF DIAGNOSIS	
White	1	Clinical	1
Hispanic	2	Serology	2
Black	3	Culture	3
American Indian	4	Biopsy/Smear	4
Asian/Pacific Islander	5	Other	5

CHECK FOR MORE FORMS____
ENVELOPES____

Date of Report: _____

Mail to: Texas Department of Health
Epidemiology Division
1100 West 49th Street
Austin, TX 78756-3180

REPORTING AGENCY: _____

TELEPHONE #: (_____) _____ CITY: _____

Or Call 1-800-252-8239 1-512-458-7328

NOTIFIABLE DISEASE REPORT (CONTINUED)

Disease	Date of Onset	Patient Information (Last name, first)	Age	Sex	Race	Type of Diagnosis
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				

OCCUPATIONAL DISEASES

Disease	Date of Diagnosis	Patient Information (last name first)	Age	Sex	Race	Agency Use
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				
		NAME CITY PHYSICIAN				