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HEPATITIS

SURVEILLANCE
REPORT
1985 - 2004



FLORIDA DEPARTMENT OF HEALTH
Florida Hepatitis Program



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Preface

The 2004 Hepatitis Surveillance Report presents statistics and trends about viral hepatitis in Florida from January 1, 1985, through December 31, 2004. This publication, which summarizes viral hepatitis case reports received from county health departments, laboratories, and other public and private providers, is intended as a reference document for policymakers, program managers, health planners, researchers, and others who are concerned with the public health impact of these diseases. Any comments and suggestions that would improve the usefulness of future publications are appreciated and should be sent to Administrator, Florida Hepatitis Program, Bureau of HIV/AIDS, Florida Department of Health, 4052 Bald Cypress Way, Bin A-09, Tallahassee, Florida, 32399-1720.

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Executive Summary

Despite dramatic declines in the rates of acute viral hepatitis rates (Figure 1) over the past two decades, disease due to hepatitis A, hepatitis B, and hepatitis C continues to be an important public health problem causing significant morbidity and mortality in Florida. Based on national estimates, more than 300,000 Floridians are infected with hepatitis C, yet few of those infected know that they are infected. Further, the incidence of acute hepatitis B in Florida has averaged approximately 3.4 per 100,000 people over the last five years (Table 1), and outbreaks and increased rates of hepatitis A continue to be seen among several groups in Florida (*Vaccine*, 2005).

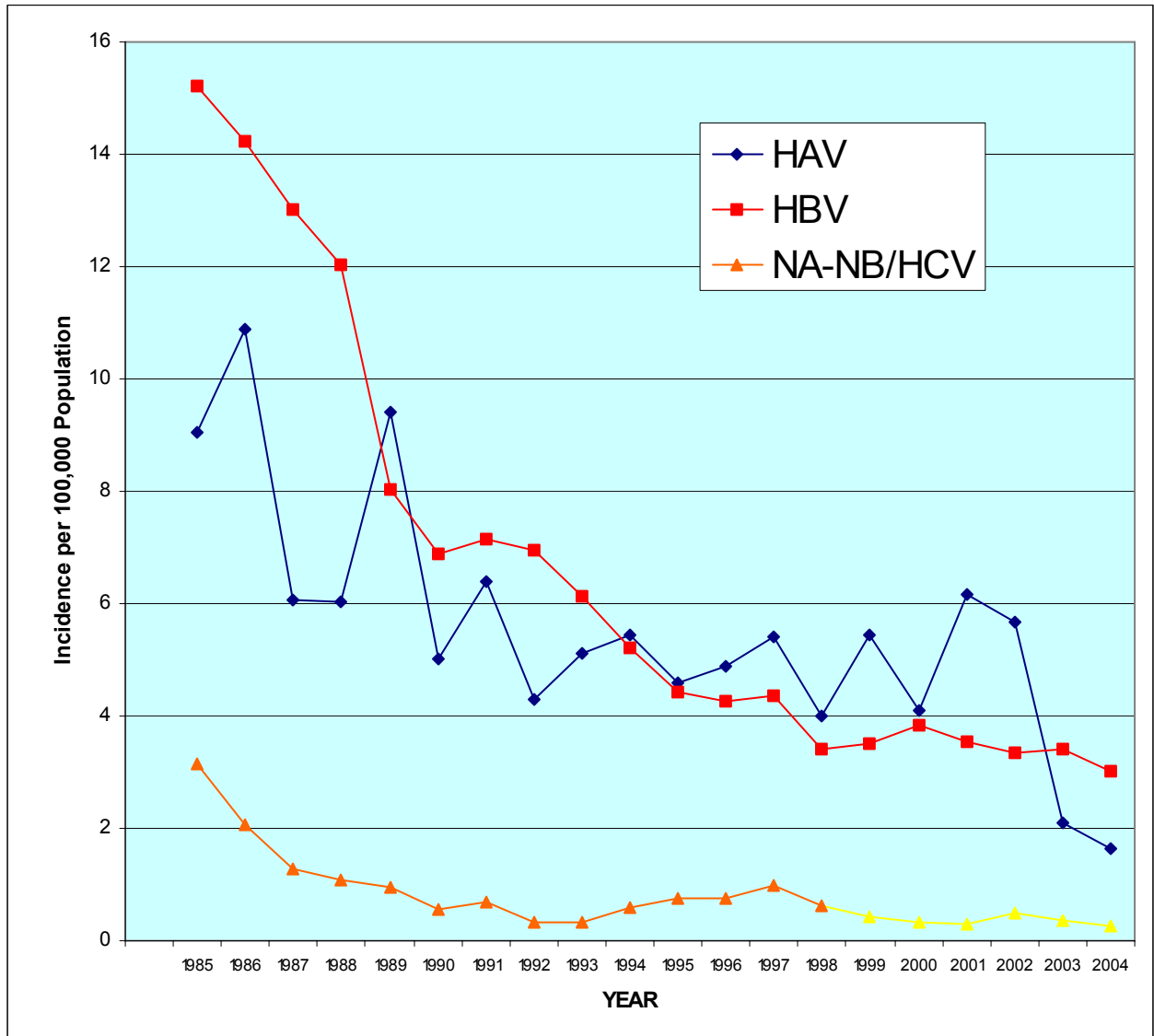
The state legislature recognized the importance of chronic hepatitis prevention and control in the 1999 session by appropriating \$2.5 million towards development of the beginning of a comprehensive hepatitis and liver failure prevention and control program. The legislature continued their support of the comprehensive program by appropriating \$3.5 million in the 2000-2001 fiscal year and in each subsequent year.

Florida's comprehensive statewide hepatitis prevention and control objectives include:

- Providing leadership, policy development, and technical assistance that supports education and prevention services through county health departments and community-based organizations.
- Supporting the development of a comprehensive prevention plan for hepatitis and liver failure.
- Overseeing counseling and testing services for hepatitis.
- Providing hepatitis vaccination for adults at high risk.
- Promoting treatment and community-based patient care services to persons infected with hepatitis.
- Promoting activities to support prevention initiatives at the local and state levels.
- Allocating state hepatitis resources for prevention, education, vaccination, testing, surveillance, patient care, and other hepatitis services.

To accomplish these objectives, the program funds nine counties – Broward, Collier, Escambia, Lee, Miami-Dade, Monroe, Pinellas, Polk, and Seminole (Figure 2) – to provide comprehensive hepatitis services to residents at high risk for infection or for the serious consequences of infection. The program also funds a statewide hepatitis C hotline. Hepatitis A and hepatitis B vaccines, as well as testing for hepatitis B and C, are available at no cost for high-risk adults. In 2001, vaccine and testing for adults at risk were made available to all counties. Further, efforts are underway to integrate hepatitis programs and activities with HIV/AIDS, sexually transmitted disease (STD), immunizations, and corrections programs that offer vaccine, testing, and educational services. Comprehensive hepatitis and liver failure prevention and control programs are needed in state health departments. The Florida program demonstrates an early approach to developing this important public health program.

**Figure 1. Incidence of Viral Hepatitis
Florida, 1985-2004**



DATA SOURCE: Bureau of Epidemiology, MERLIN (1992–2003) and Florida Morbidity Reports (1985-1991)
POPULATION DATA: CHARTS, Office of Planning, Evaluation, and Data Analysis, Florida Department of Health

▲ Years 1985-1998, reported non-A, non-B hepatitis.
Data represents reported cases (confirmed, probable, and suspect).

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**Table 1. Cases and Case Rates of Acute Viral Hepatitis, by Type and Year
Florida, 1984–2004**

Year	Hepatitis A		Hepatitis B		Hepatitis C/NA-NB*	
	# cases	rate**	# cases	rate**	# cases	rate**
1985	1028	9.06	1728	15.22	356	3.14
1986	1268	10.87	1659	14.22	243	2.08
1987	729	6.08	1563	13.03	155	1.29
1988	742	6.03	1480	12.03	132	1.07
1989	1190	9.42	1016	8.04	121	0.96
1990	656	5.03	896	6.88	73	0.56
1991	850	6.38	951	7.14	93	0.70
1992	583	4.30	943	6.96	43	0.32
1993	707	5.12	847	6.14	44	0.32
1994	768	5.44	735	5.21	82	0.58
1995	661	4.59	640	4.44	108	0.75
1996	720	4.90	627	4.26	112	0.76
1997	812	5.41	655	4.36	150	1.00
1998	611	3.99	521	3.40	97	0.63
1999	855	5.45	551	3.51	67	0.43
2000	659	4.10	614	3.82	53	0.33
2001	1013	6.17	582	3.55	50	0.30
2002	951	5.67	559	3.33	82	0.49
2003	361	2.11	584	3.42	63	0.36
2004	286	1.63	537	3.07	51	0.29

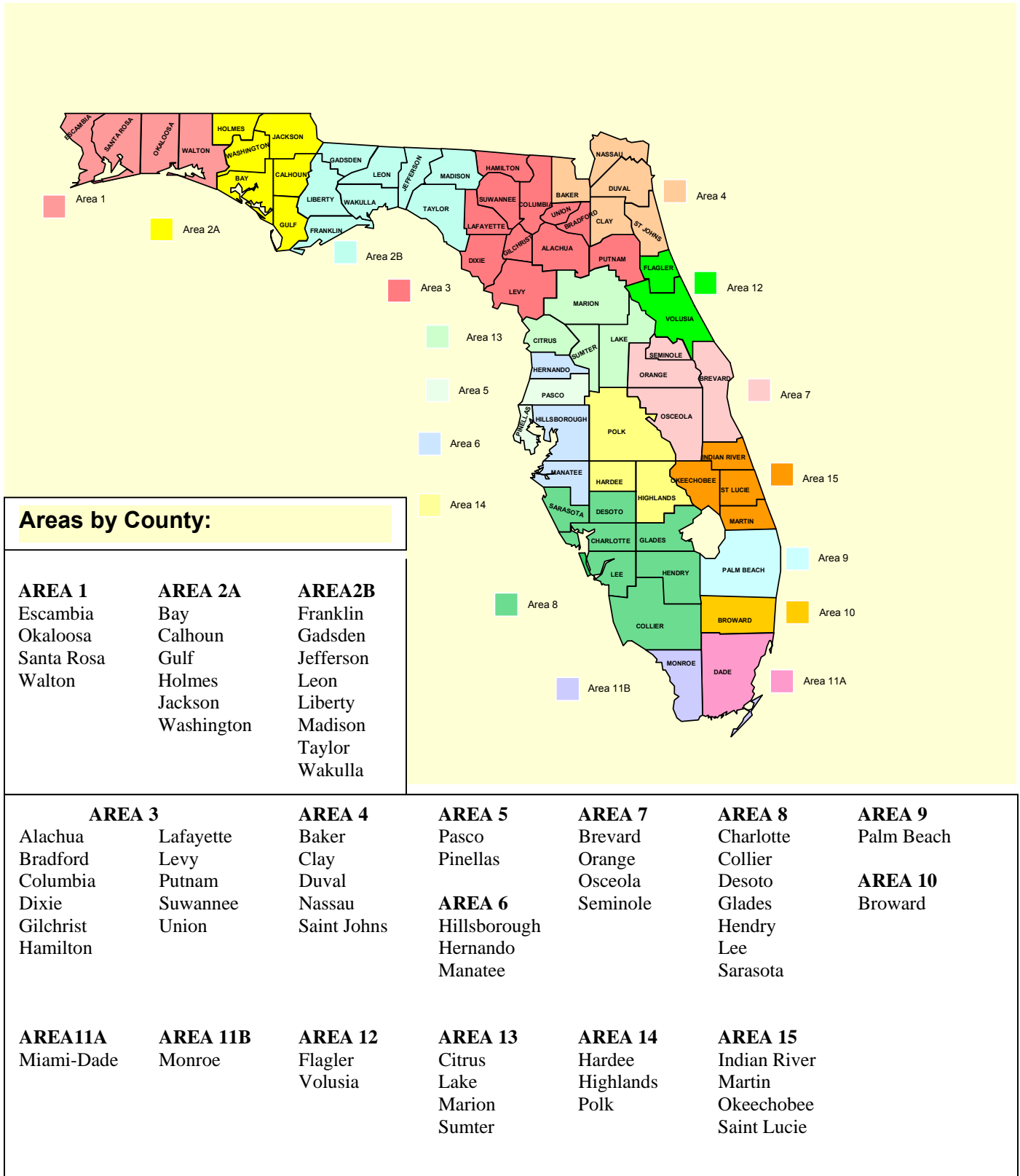
Data Source: Bureau of Epidemiology, MERLIN (1992–2004) and Florida Morbidity Reports (1984-1991)

* Numbers and rates for hepatitis C/Non-A/Non-B (NA-NB) are unreliable.

** Rate per 100,000 population.

Data represent reported cases (confirmed, probable, and suspect)

Figure 2. Geographic Regions and Counties of Florida



METHODS

Conditions Under Surveillance

Statewide surveillance in Florida has historically been conducted for acute hepatitis A, acute hepatitis B, acute hepatitis C, acute non-A-non-B hepatitis (NA-NB), and unspecified acute hepatitis. Case definitions for these conditions are described below. Statewide reporting of perinatal infections from the hepatitis B virus (HBV) was implemented in 1998. In mid-2000, providers were requested to begin reporting of chronic hepatitis B infections and hepatitis C infections, past or present. This publication summarizes information received about reported cases of acute disease (includes confirmed, probable, and suspect cases).

Sources of Data

Cases of acute hepatitis are reported on an on-going basis to the Florida Department of Health (DOH) by local county health departments that receive notifiable disease reports from a variety of reporting sources. In 2001, counties began reporting all cases through MERLIN, an electronic reporting system. For the period covered by this report, counties and laboratories reported data using hard-copy forms through 2000 and by electronic means from 2001 forward. The data used in this report are based on a combination of aggregated MERLIN data and summary hard-copy reports received for the years 1987 through 2004.

Participation by providers in the reporting of viral hepatitis cases is a required (Chapter 64D-3, *Florida Administrative Code*). All county health departments collect and report basic information (event date, source of report, demographic characteristics) about cases of acute viral hepatitis that are identified in their county. Counties are also asked to report additional epidemiologic information (laboratory test results, clinical information, and exposure history) about cases. The completeness and accuracy of reporting these additional data elements vary among and within counties with more complete information for acute than for chronic cases.

To date, surveillance efforts for viral hepatitis have focused on cases of newly acquired clinically apparent disease. Historically, most cases of acute viral hepatitis have been identified on the basis of a clinician's report of a patient with an illness compatible with acute hepatitis. With the implementation of laboratory reporting requirements, laboratory-based reporting of serologic markers for viral hepatitis is an increasingly common route by which suspected cases are identified and reported to the state and to local county health departments. In addition to acute cases, laboratory-based reporting may identify asymptomatic individuals with newly acquired infections, individuals with chronic infections, and individuals for whom there is insufficient information to verify the diagnosis based on laboratory testing alone.

Analyses

Incidence rate calculations. Crude incidence rates of new cases are calculated on an annual basis per 100,000 population using the Community Health Assessment Resource Tool Set (CHARTS) estimates of the Florida resident population. Analyses of incidence by race and ethnicity are based on population figures using the Bureau of Census estimates (year 2000), since some race and ethnicity demographics are not available through CHARTS. MERLIN data is used for the reported numbers of cases.

Frequency analysis. Analysis of risk factors and clinical characteristics are based on case reports in MERLIN that included information about symptoms and serologic test results; acute viral hepatitis is summarized in this report. Data presented represent crude frequencies.

Data limitations. There is considerable variability by county in terms of both the sensitivity of reporting (that is, frequency of underreporting) and the completeness of individual case reports. Information to assess the degree of underreporting is not available. According to the Centers for Disease Control and Prevention (CDC), only 11-40 percent of cases reported to them from Florida include extended case investigation data (for example, clinical characteristics, exposure history).¹ Analyses of trends in the characteristics of reported cases are based on records for which this information is complete. It is not known if, or how many, cases are reported with complete data that differ from those for which data are missing or from those that are not reported.

An increasing number of reports are being made to health departments on the basis of laboratory test results alone due to widespread use of laboratory testing and implementation of laboratory reporting requirements. Reports that are likely to represent cases of acute hepatitis cannot be distinguished, in many cases, from those representing chronic infection [in the case of infection with HBV or hepatitis C virus (HCV)], previous infections, or false-positive test results because information about symptoms or additional serologic testing is not available. If a laboratory-based report cannot be classified as an acute case under the case definitions used, which include both a clinical aspect and a laboratory test result component, the report is not included in the acute case database, but it is included in the chronic database, if it meets the case definition.

Acute Viral Hepatitis Case Definitions - Florida

DISEASE/CONDITION	PARAMETER	DEFINITION
Hepatitis A, Acute	<i>Clinical Description</i>	An acute illness with a) discrete onset of symptoms and b) jaundice or elevated serum aminotransferase levels. Symptoms most commonly include fever, malaise, anorexia, nausea, and abdominal discomfort, followed in a few days by jaundice.
	<i>Laboratory Criteria</i>	IgM antibody to hepatitis A virus (HAV)-positive (anti-HAV).
	<i>Case Classification</i>	<u>CONFIRMED</u> : A clinically compatible case that is laboratory confirmed or a clinically compatible case that occurs in a person who has an epidemiologic link with a person who has laboratory confirmed hepatitis A (that is, household or sexual contact with an infected person during the 15-50 days before the onset of symptoms). <u>PROBABLE</u> : A clinically compatible case that is IgM-positive, lacks jaundice or elevated liver enzymes, but has discrete onset of other appropriate symptoms.
Hepatitis B, Acute	<i>Clinical Description</i>	An acute illness with a) discrete onset of symptoms and b) jaundice or elevated serum aminotransferase levels. Symptoms most commonly include anorexia, vague abdominal discomfort, nausea, and vomiting. Only a small proportion of acute hepatitis B infections will be clinically recognized.
	<i>Laboratory Criteria</i>	IgM antibody to hepatitis B core antigen (anti-HBc) positive (if done) or hepatitis B surface antigen (HBsAg)-positive and IgM anti-HAV-negative (if done).
	<i>Case Classification</i>	<u>CONFIRMED</u> : A case that meets the clinical case definition and is laboratory confirmed. <u>PROBABLE</u> : A case that is IgM anti-HBc-positive, lacks jaundice or elevated liver enzymes, but has discrete onset and other appropriate symptoms. Probable cases also include patients who have a discrete onset of symptoms, have a positive HBsAg and are epidemiologically linked to a confirmed acute hepatitis B case.
Hepatitis B, Chronic	<i>Clinical Description</i>	Persons with chronic infections from HBV may have no evidence of liver disease or may have a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer. Persons with chronic infection may be asymptomatic.
	<i>Laboratory Criteria</i>	Hepatitis B surface antigen (HBsAg) positive, total anti-HBc-positive (if done) and IgM anti-HBc-negative or HBsAg-positive two times at least six months apart.
	<i>Case Classification</i>	<u>CONFIRMED</u> : A case that is laboratory confirmed. <u>SUSPECT</u> : A case that is HBsAg-positive, but absent other diagnostic criteria.

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DISEASE/CONDITION	PARAMETER	DEFINITION
Hepatitis C, Acute	<i>Clinical Description</i>	An acute illness with a) discrete onset of symptoms and b) jaundice or elevated serum aminotransferase levels. Symptoms most commonly include: anorexia, vague abdominal discomfort, nausea and vomiting.
	<i>Laboratory Criteria</i>	Serum aminotransferase levels greater than 2.5 times the upper limit of normal and IgM anti-HAV-negative and IgM anti-HBc-negative (if done) or HBsAg-negative and antibody to hepatitis C virus (anti-HCV)-positive, verified by a supplemental test.
	<i>Case Classification</i>	<u>CONFIRMED</u> : a case that meets the clinical case definition and is laboratory confirmed. <u>PROBABLE</u> : a hepatitis C case with a clinically compatible illness and with positive anti-HCV laboratory results, but not verified by a supplemental test.
	<i>Comment</i>	<i>Up to 20 percent of acute hepatitis C cases will be anti-HC- negative when reported and will be classified as non-A/non-B hepatitis because some (5-10 percent) have not yet seroconverted and others (5-19 percent) remain negative with prolonged follow-up. Available serologic tests for anti-HCV do not distinguish between acute and chronic or past infection. Thus, other causes of acute hepatitis should be excluded for anti-HCV-positive patients who have an acute illness compatible with viral hepatitis. Report liver enzyme results for all cases where these are available.</i>
Hepatitis C, Chronic	<i>Clinical Description</i>	Persons with chronic hepatitis C may have no evidence of liver disease or may have a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer. Persons with chronic infection may be asymptomatic.
	<i>Laboratory Criteria</i>	Antibody to HCV (anti-HCV) positive (repeat reactive) by enzyme immunoassay (EIA) or chemiluminescence immunoassay (CIA), verified by an additional more specific assay (for example, RIBA for anti-HCV or nucleic acid testing for HCV RNA), or anti-HCV-positive (repeat reactive) by EIA with signal to cut-off ratio greater than or equal to 3.8.
	<i>Case Classification</i>	<u>CONFIRMED</u> : A case that is laboratory confirmed. <u>PROBABLE</u> : A case that is anti-HCV-positive (repeat reactive) by EIA and has alanine aminotransferase (ALT or SGPT) values above the upper limit of normal, but the anti-HCV by EIA result has not been verified by an additional more specific assay or the signal to cut-off ratio is unknown. <u>SUSPECT</u> : A case that is anti-HCV-positive, but absent other diagnostic criteria.
	<i>Comment</i>	<i>Nucleic acid test (for example, PCR for HCV RNA or quantitative viral load) positive cases are confirmed positive, although anti-HCV by EIA and CIA are not available.</i>

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DISEASE/CONDITION	PARAMETER	DEFINITION
Hepatitis NA-NB, Acute	<i>Clinical Description</i>	An acute illness with a) discrete onset of symptoms and b) jaundice or elevated serum aminotransferase levels.
	<i>Laboratory Criteria</i>	Serum aminotransferase levels greater than 2.5 times the upper limit of normal and IgM anti-HAV-negative and IgM anti-HBc-negative (if done), or HBsAg-negative and anti-HCV-negative (if done).
	<i>Case Classification</i>	<u>Confirmed</u> : a case that meets the clinical case definition and is laboratory confirmed.
	<i>Comment</i>	<i>Report liver enzyme results for all cases where these are available.</i>
Hepatitis B, Perinatal	<i>Clinical Description</i>	Perinatal hepatitis B in a newborn may range from asymptomatic to fulminant hepatitis.
	<i>Laboratory Criteria</i>	HBsAg-positive.
	<i>Case Classification</i>	<u>Confirmed</u> : Any HBsAg-positive infant, ages greater than one to 24 months, who was born to an HBsAg-positive mother.
	<i>Comment</i>	<i>Infants born to HBsAg-positive mothers should receive hepatitis B immune globulin (HBIG) and the first dose of hepatitis B vaccine within 12 hours of birth, followed by the second and third doses of vaccine at one and six months old, respectively. Post vaccination testing for HBsAg and antibody to hepatitis B surface antigen (anti-HBsAg) is recommended from three to nine months following completion of the vaccine series. If HBIG and the initial dose of vaccine are delayed for more than one month after birth, testing for HBsAg may determine if the infant is already infected. The mother of a child reported under this code should be reported as HBsAg-positive in a pregnant woman, code 07039.</i>
Hepatitis B Surface Antigen (HBsAg+) in Pregnant Women	<i>Clinical Description</i>	Acute or chronic illness, regardless of symptomatology, in which a woman tests positive for HBsAg during pregnancy.
	<i>Laboratory Criteria</i>	HBsAg-positive.
	<i>Case Classification</i>	<u>Confirmed</u> : A case that meets case definition and is laboratory confirmed.

Acute Hepatitis A

Summary

Nationally, hepatitis A remains one of the most frequently reported vaccine preventable diseases, despite the dramatic decline in rates following the introduction in 1995 of an effective vaccine for use in individuals at least two years old. In 2004, Florida reported 286 hepatitis A cases, which represent cases classified as *confirmed* or *probable*. This is a 70 percent decline from the 951 cases reported in 2002, a year in which a central Florida county experienced a large community-wide outbreak associated with non-injecting drug use.

Since 1996, hepatitis A vaccine has been recommended nationally for individuals at increased risk of hepatitis A infection, including international travelers, men who have sex with men, and injecting and non-injecting drug users. In 1999, routine vaccination was recommended for children living in states with average hepatitis A rates during 1987-1997, which were at least 20 per 100,000 population. Vaccination was also suggested for children in several additional states where rates were less than 20 per 100,000 population, but above 10 per 100,000 population, which was approximately the national average for that period. The rates for Florida during this period were below the national average, although some Florida areas reported rates above 10 per 100,000 population during the same period.

Current changes in hepatitis A rates suggest that these national recommendations and the state's recent comprehensive prevention efforts are having an impact on reducing the transmission of the hepatitis A virus (HAV). The overall rate in 2004 is the lowest yet recorded, in both Florida and the nation, as well (Figure 3). The decline in rates that has been observed in recent years has also been accompanied by substantial shifts in the epidemiologic profile of this disease, with an increasing proportion of cases occurring among adults, particularly those in high-risk groups such as men who have sex with men. Additional surveys and surveillance are needed to determine if the current rates are sustained and attributable to vaccination, as well as to identify groups and areas where additional vaccination efforts are needed.

- Temporal Incidence. Historically, hepatitis A rates have varied cyclically with periodic statewide increases. The rate of hepatitis A in Florida has declined steadily since the last major peak that occurred in 1989. With 286 cases of hepatitis A reported for the year 2004, the statewide incidence is now the lowest yet recorded (1.63 per 100,000). (Figure 3).

- Geographical Incidence. In addition to temporal variation, hepatitis A rates have consistently varied geographically (Table 2) with higher rates in south and central Florida where many of the counties are home to persons most at risk including large migrant populations. Historically, counties in north Florida have consistently reported disease rates below the state rate (Figure 4).

- Age. During the last 10 years, hepatitis A rates have steadily declined among all age groups. Historically, the highest rates have been among children and young adults with the lowest rates observed among persons greater than 40 years old. However, since 1994, rates among children have declined more rapidly than among adults. During the years 1995-2003, rates in Florida were highest among persons 25-39 years old and lowest among children younger than five and persons more than 40 years old. In 2004, the highest rates were in individuals 14 years old and younger, and lowest in persons 25 years old and older (Figure 6). Reported cases in children younger than five years old probably represent only a small proportion of infections occurring among this age group, however, asymptomatic infection is common among very young children.

Data from the Third National Health and Nutrition Examination Survey (NHANES III), conducted during 1988-1994, indicated that approximately one-third of the United States (U.S.) population have serologic evidence of immunity to HAV. Hepatitis A rates among persons 40 years old and older have been low and relatively stable, reflecting the higher proportion of persons in this age group with immunity due to a previous infection.

- Gender. In 2004, the rate of hepatitis A among males in Florida was 1.87 versus 1.40 among females (per 100,000 persons). The most recent five-year average rate was 6.18 for males and 2.89 for females; the male to female ratio for this period was 2.1. Rates have been historically higher in males than females, but this difference increased considerably between 1997 and 1999, where the ratio of males to females was 2.8 and 3.0 per 100,000 population, respectively. The male to female ratio increase during the latter 1990s and early 2000s reflects the change in the epidemiology of hepatitis A from highest rates in children to highest rates in males 25 to 39 years old. However, the 2004 male to female ratio (1.3) is now similar to pre-1997 rates (Figure 7).

In 2004, the rate of hepatitis A in Florida is similar in males and females in ages 10 to 19 and in persons older than 60. Between the ages of 20 and 59, males had rates that were approximately 2 to 4 times higher than rates among females, with the greatest difference being observed for adults 20-39 years old (Figure 8).

- Race and Ethnicity. Historically, incidence of hepatitis A has varied by race/ethnicity, with the highest rates nationally among American Indians/Alaskan Natives. and rates among Hispanics that were higher than among non-Hispanics. National rates among American Indians have dropped dramatically since the implementation of widespread routine hepatitis A vaccination in this group.

Approximately 9 percent of cases reported in Florida lack data for race and 16 percent lack data for ethnicity. However, for those reports including race and ethnicity information, hepatitis A rates among Hispanics remain higher than among non-

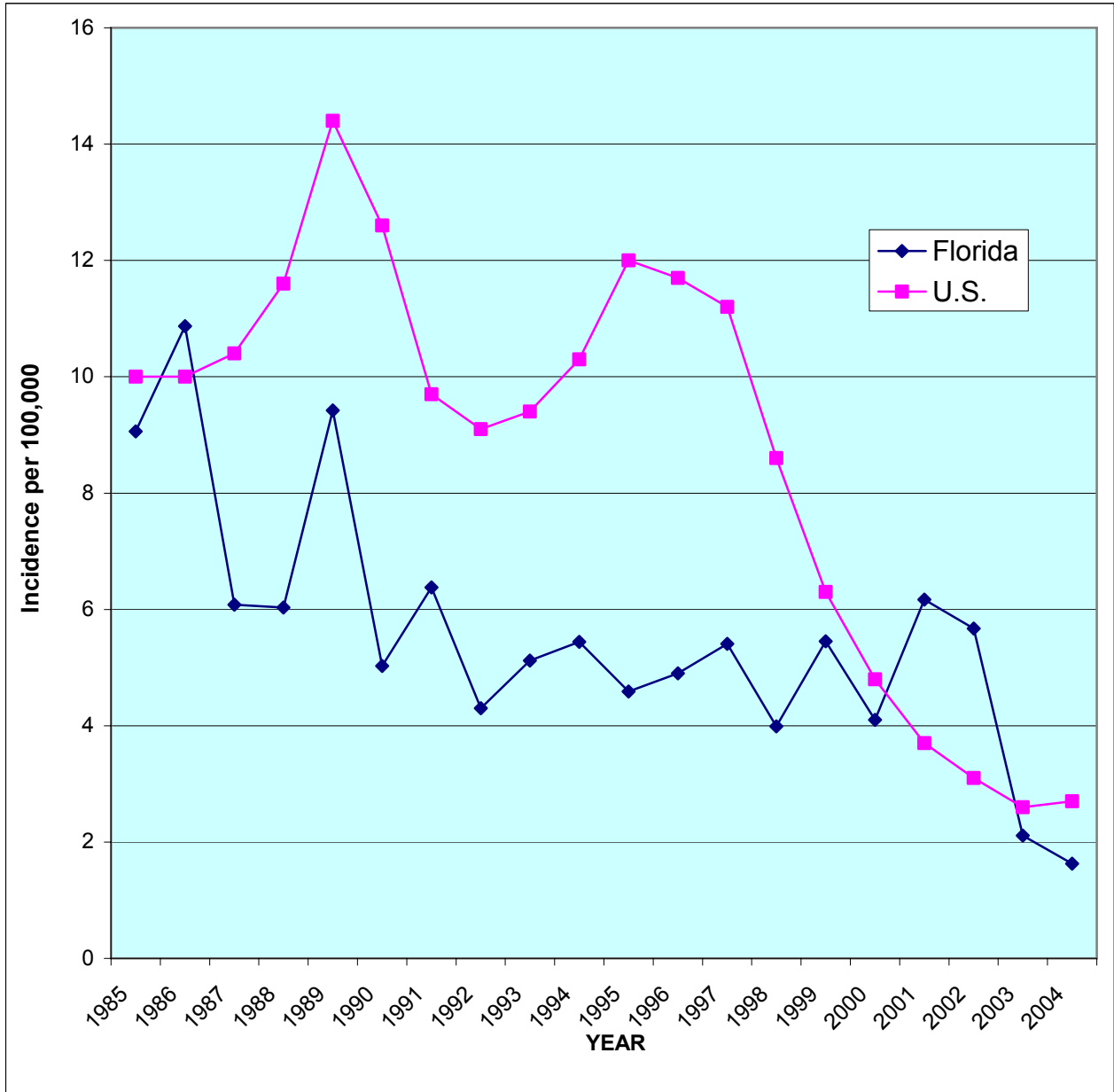
Hispanics (Figure 9). In 2004, the rate for hepatitis A among Hispanics was nearly four times that of non-Hispanics.

- Risk Factors. Among cases where information about exposures was determined during the incubation period, the most common risk factors for hepatitis A in 2004 were international travel, sexual or household contact with another person with hepatitis A, and male homosexual activity (Table 3, crude rates).

The epidemiology of hepatitis A in Florida changed in the mid-1990s from the highest rates occurring in children younger than 10 years old to the highest rates occurring in adult males 20-39 years old. This change, which occurred over the period of 1995 to 2002, is attributed to an increasing proportion of cases among adults in high-risk groups such as men who have sex with men. However, in 2004, the proportion of cases in this high-risk group was only 3.6 percent, a dramatic decline from 32.2 percent in 2001. The proportion of cases attributed to travel outside the U.S. has increased over the last four years from 21.9 percent in 2000 to 38.1 percent in 2004. In comparison, the proportion of cases attributed to other risk factors declined during the same period, and less than 2 percent of cases in 2004 were attributed to each of the following, previously significant, risk factors: being a child or employee in daycare (1.5 percent) and injection drug use (1.6 percent).

- Clinical Characteristics. Among reported hepatitis A cases in 2004 with recorded hospitalization and death information, 38.6 percent of cases were hospitalized because of their illness and 0.4 percent reported a death. The proportion of cases hospitalized for hepatitis increased with age from 17 percent among children younger than five years old to 50 percent among persons 60 years old or older. The greatest number of deaths (10) over the last five years occurred in persons 60 and older, while during the same period the greatest number of hospitalizations (395) occurred among persons 15 to 39 years old (Table 4).

**Figure 3. Incidence of Hepatitis A
Florida and U.S., 1985-2004**



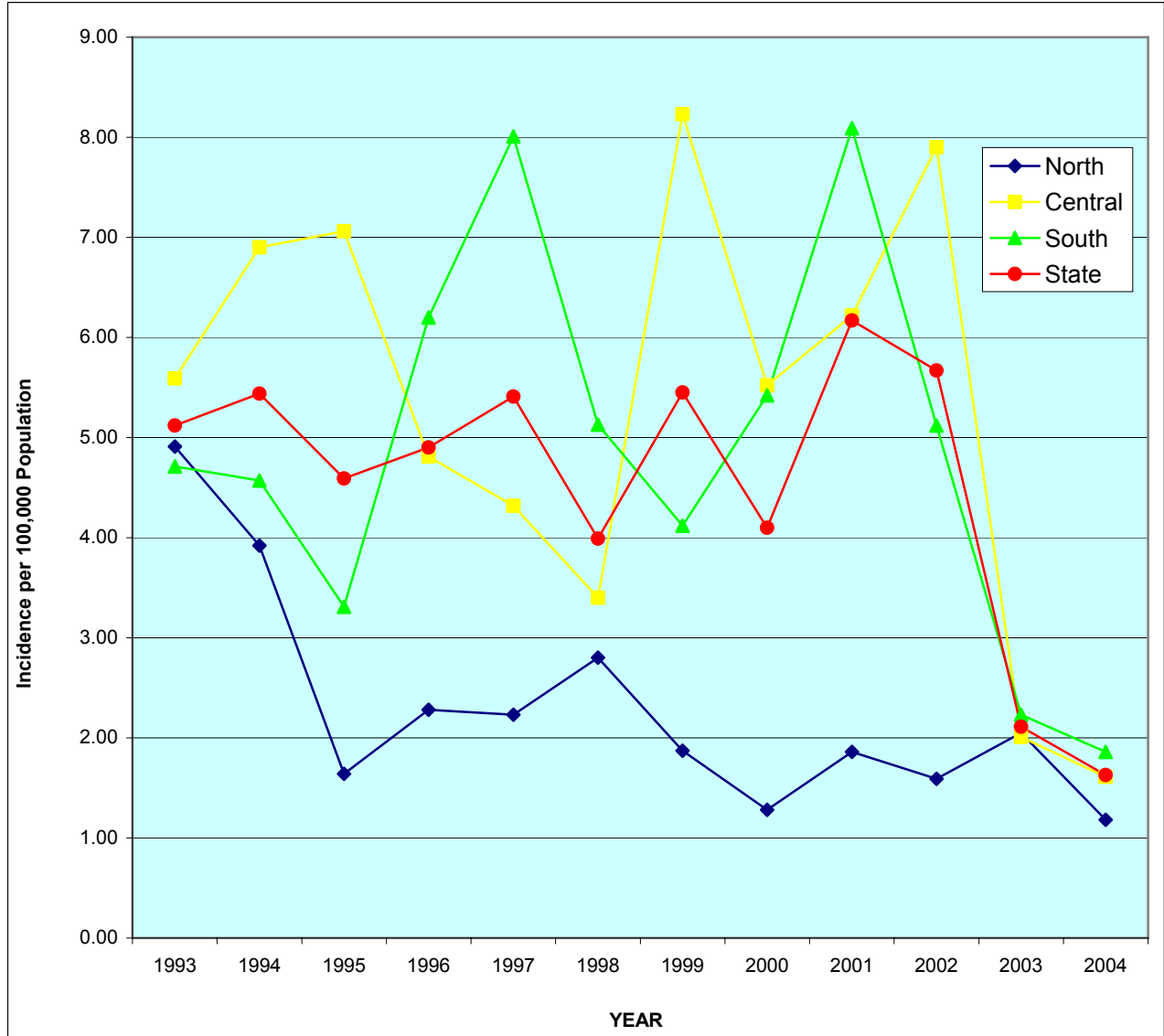
DATA SOURCE: Bureau of Epidemiology, MERLIN (1992–2003) and Florida Morbidity Reports (1985-1991)

Data represent reported cases (confirmed, probable, and suspect).

U.S. Data: National Notifiable Diseases Surveillance System

POPULATION DATA: CHARTS, Office of Planning, Evaluation, and Data Analysis, Florida Department of Health

**Figure 4. Incidence of Hepatitis A, by Region
Florida, 1993-2004**



DATA SOURCE: MERLIN, Bureau of Epidemiology

Data represent reported cases (confirmed, probable, and suspect).

POPULATION DATA: CHARTS, Office of Planning, Evaluation, and Data Analysis, Florida Department of Health

Regional Categories (see map, page 4)

North: Area 1, Area 2A, Area 2B, Area 3, and Area 4

Central: Area 5, Area 6, Area 7, Area 12, Area 13, Area 14, and Area 15

South: Area 8, Area 9, Area 10, Area 11A, and Area 11B

**Table 2. Hepatitis A Cases by County and Case Rates, by Area
Florida, 1993-2004**

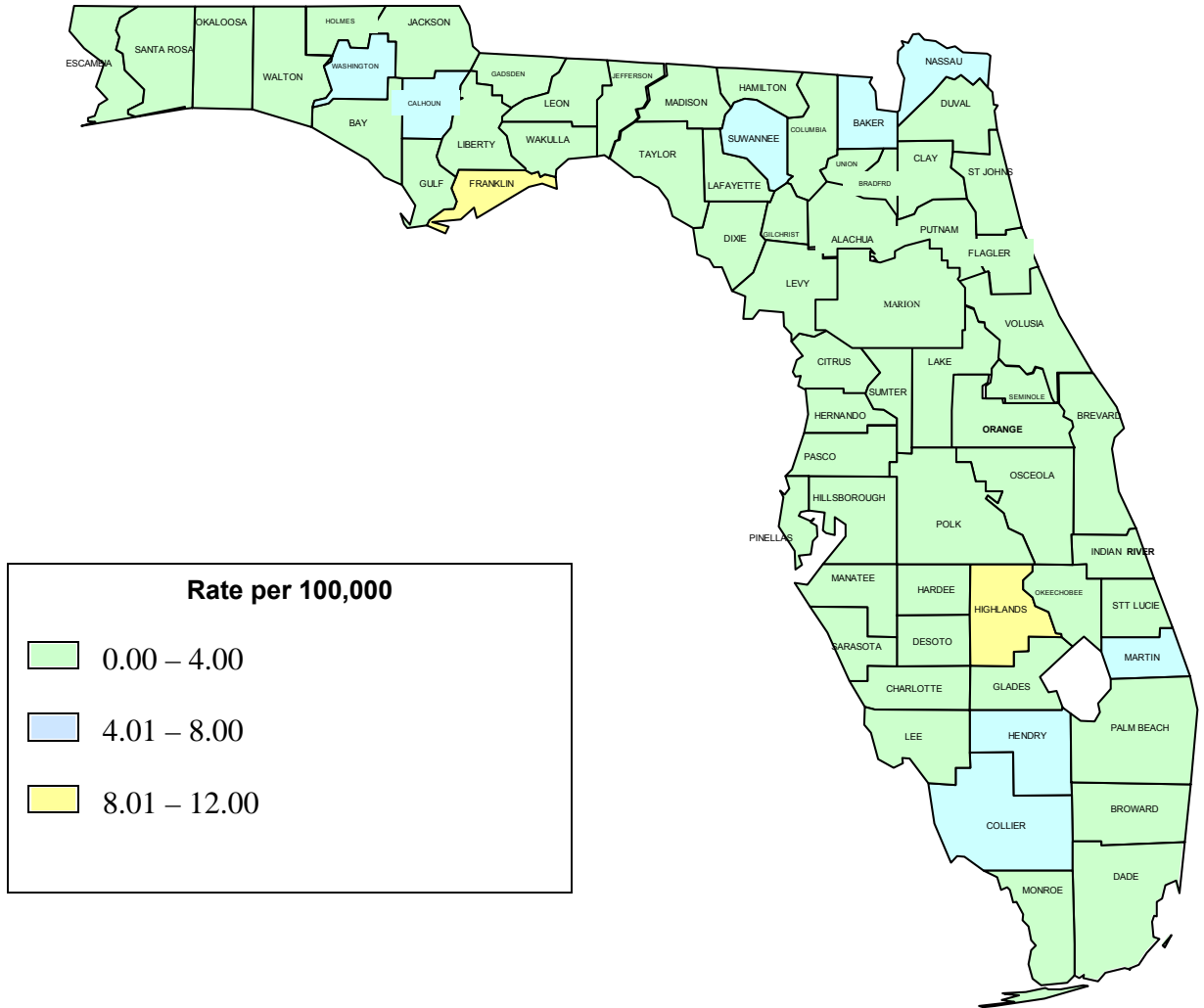
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Area 1	2.21	2.52	2.12	1.91	1.19	3.66	0.97	1.76	1.57	0.61	2.41	1.18
Escambia	5	7	8	6	1	13	4	2	4	1	7	2
Okaloosa	7	6	3	3	4	5	1	0	4	1	9	5
Santa Rosa	0	1	0	1	2	1	0	9	1	1	0	1
Walton	0	0	1	1	0	3	1	0	1	1	0	0
Area 2A	0.43	1.25	0.82	1.62	1.20	0.79	1.93	0.38	1.50	0.00	0.73	0.72
Bay	1	1	2	1	3	0	1	0	3	0	1	0
Calhoun	0	0	0	0	0	0	4	0	1	0	0	1
Gulf	0	0	0	1	0	1	0	1	0	0	1	0
Holmes	0	0	0	0	0	0	0	0	0	0	0	0
Jackson	0	0	0	1	0	0	0	0	0	0	0	0
Washington	0	2	0	1	0	1	0	0	0	0	0	1
Area 2B	8.85	5.64	1.74	1.98	2.79	3.28	1.61	0.80	3.13	1.03	5.26	1.23
Franklin	0	0	0	0	0	0	0	0	0	0	0	1
Gadsden	1	10	1	2	1	0	1	1	1	2	0	0
Jefferson	0	3	0	0	2	0	0	0	0	0	0	0
Leon	28	6	4	5	7	9	5	1	7	2	21	4
Liberty	0	0	0	0	0	0	0	0	0	0	0	0
Madison	0	0	0	0	0	1	0	0	3	0	0	0
Taylor	0	0	0	0	0	1	0	1	0	0	0	0
Wakulla	0	0	1	0	0	1	0	0	1	0	0	0
Area 3	1.60	8.04	1.53	1.29	0.84	1.45	3.45	1.78	1.75	1.91	3.59	1.48
Alachua	5	3	5	2	2	5	8	4	3	7	11	3
Bradford	0	0	0	1	0	1	0	0	2	0	1	1
Columbia	0	3	1	0	0	0	0	2	0	0	0	1
Dixie	0	0	0	0	0	0	0	0	2	1	0	0
Gilchrist	1	0	0	0	0	0	0	0	0	0	0	0
Hamilton	0	0	0	0	0	0	0	0	0	0	1	0
Lafayette	0	0	0	0	0	0	0	0	0	0	0	0
Levy	0	0	0	1	0	0	4	0	0	1	5	0
Putnam	1	29	1	0	1	1	0	2	1	0	1	1
Suwannee	0	0	0	0	0	0	1	1	0	1	0	2
Union	0	1	0	2	1	0	4	0	1	0	0	0
Area 4	7.64	2.90	1.58	3.20	3.59	3.24	1.73	1.15	1.73	2.53	0.49	1.13
Baker	39	0	0	0	1	0	0	0	1	0	0	1
Clay	0	3	1	2	1	6	1	1	2	2	0	1
Duval	27	25	12	27	32	26	14	11	14	16	5	7
Nassau	4	1	1	1	0	0	0	1	2	2	0	4
St Johns	5	0	2	3	4	3	4	0	1	10	1	1
Area 5	1.28	3.04	3.42	2.72	3.18	1.94	8.21	4.49	3.66	2.46	1.90	1.35
Pasco	0	8	4	18	18	5	16	6	10	7	6	6
Pinellas	15	28	37	15	21	19	87	51	37	25	19	12
Area 6	4.53	8.58	9.38	5.22	7.28	4.44	10.4	6.84	6.74	5.95	3.11	1.94
Hernando	1	2	0	2	2	0	7	3	4	4	0	2
Hillsborough	41	90	100	32	55	40	119	91	81	79	36	26
Manatee	13	14	18	33	38	19	16	2	12	5	11	2

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	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Area 7	8.65	6.38	4.75	3.96	4.03	4.73	8.34	2.80	3.77	5.76	1.71	1.25
Brevard	7	18	4	11	12	1	15	6	14	15	6	6
Orange	115	69	58	44	52	69	108	35	44	80	18	17
Osceola	4	4	8	4	1	1	13	4	3	8	4	2
Seminole	13	14	10	9	6	14	19	9	14	15	8	2
Area 8	7.23	6.46	4.07	4.24	4.48	4.10	2.65	1.60	2.49	3.15	2.03	2.11
Charlotte	3	1	5	8	1	2	0	0	2	2	0	0
Collier	33	20	14	10	12	5	5	6	4	1	5	19
Desoto	3	0	1	5	1	19	1	0	0	0	0	0
Glades	0	0	1	10	0	0	0	2	0	0	0	0
Hendry	3	7	4	0	3	0	0	3	2	2	4	2
Lee	28	31	11	6	18	11	12	2	18	22	13	7
Sarasota	4	9	8	8	16	11	14	7	6	15	6	2
Area 9	4.79	6.10	2.41	3.92	4.94	3.62	3.16	7.38	4.82	3.28	1.73	1.36
Palm Beach	45	59	24	40	52	39	35	84	56	39	21	17
Area 10	2.49	3.21	3.82	8.26	10.42	4.90	3.84	5.70	11.48	6.39	1.89	1.95
Broward	34	45	55	122	158	76	61	93	190	107	32	34
Area 11A	4.59	3.98	2.98	6.97	9.38	6.56	5.18	6.23	10.16	6.42	2.93	1.93
Miami-Dade	92	82	62	148	202	143	115	141	233	149	69	46
Area 11B	12.49	0.00	2.50	3.75	16.28	6.27	16.28	8.78	16.08	1.23	0.00	1.24
Monroe	10	0	2	3	13	5	13	7	13	1	0	1
Area 12	6.07	10.77	4.27	4.84	1.08	2.12	1.03	0.81	1.77	1.92	0.56	0.37
Flagler	0	0	0	1	0	0	2	0	3	0	0	1
Volusia	26	47	19	21	5	10	3	4	6	10	3	1
Area 13	2.04	1.88	2.73	2.82	2.05	2.98	6.41	5.26	1.95	6.35	2.24	1.08
Citrus	1	0	7	1	2	2	6	0	4	2	5	5
Lake	6	7	1	8	5	8	17	26	3	37	10	3
Marion	3	3	3	2	4	1	4	4	6	5	1	0
Sumter	1	0	4	5	1	7	13	4	0	0	0	0
Area 14	4.76	11.01	23.44	11.01	6.21	2.96	8.68	3.16	28.04	42.66	1.56	4.04
Hardee	2	2	6	20	2	0	3	3	2	0	0	0
Highlands	1	1	6	4	4	2	4	1	2	2	0	10
Polk	22	56	116	37	29	15	44	15	168	263	8	16
Area 15	14.19	12.15	7.12	7.43	3.86	2.00	10.87	2.76	4.36	1.62	2.36	1.92
Indian River	3	1	0	4	5	0	1	4	9	2	2	1
Martin	5	19	9	6	7	2	7	3	8	3	4	6
Okeechobee	15	4	17	16	2	0	36	1	1	1	1	3
St Lucie	34	26	4	6	3	7	6	5	3	2	5	0
FLORIDA	5.12	5.44	4.59	4.90	5.41	3.99	5.45	4.10	6.17	5.67	2.11	1.63
	707	768	661	720	812	611	855	659	1013	951	361	286

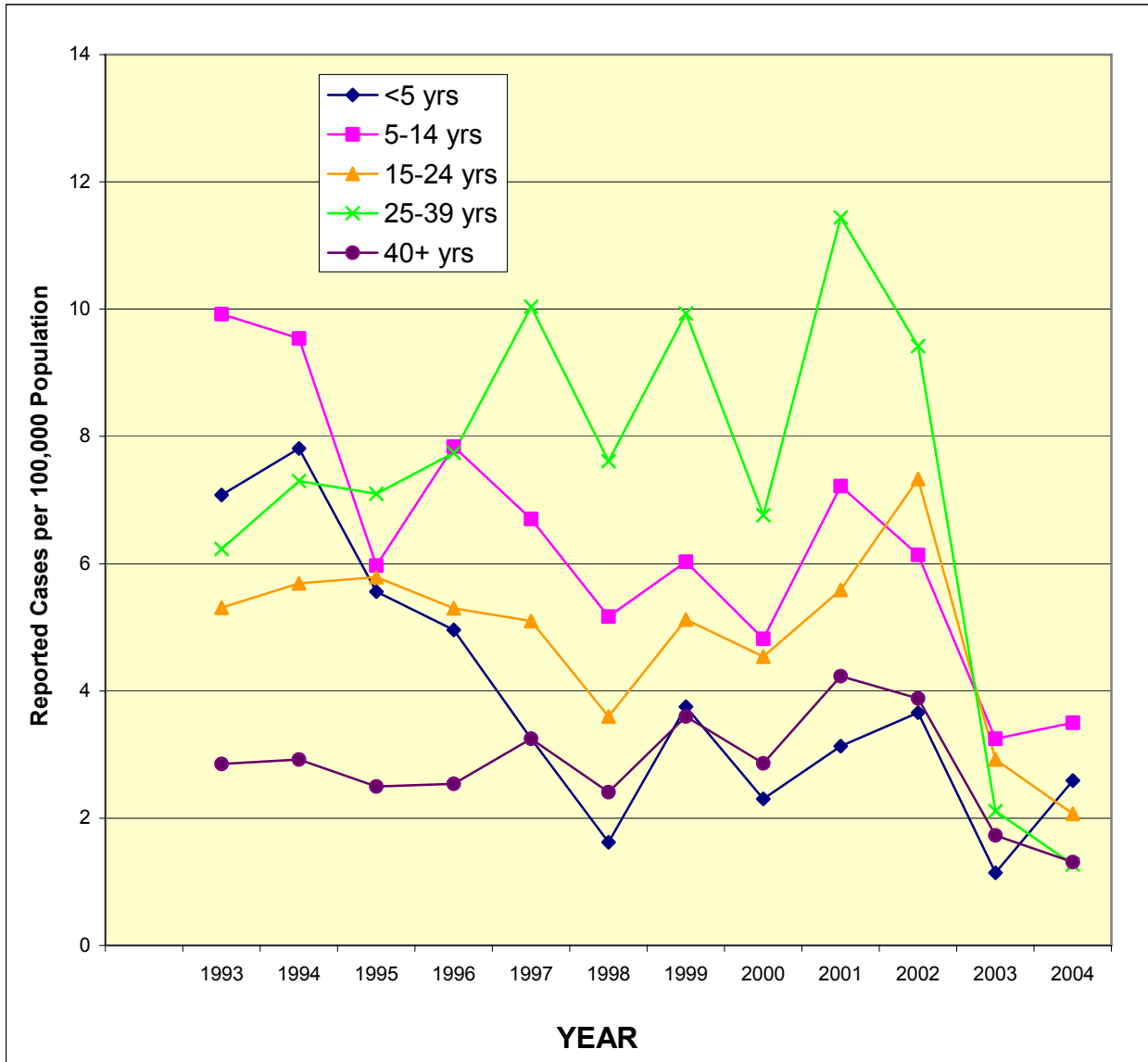
DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPOULATION DATA : CHARTS, Office of Planning, Evaluation, and Data Analysis, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

**Figure 5. Incidence of Hepatitis A, by County
Florida, 2004**



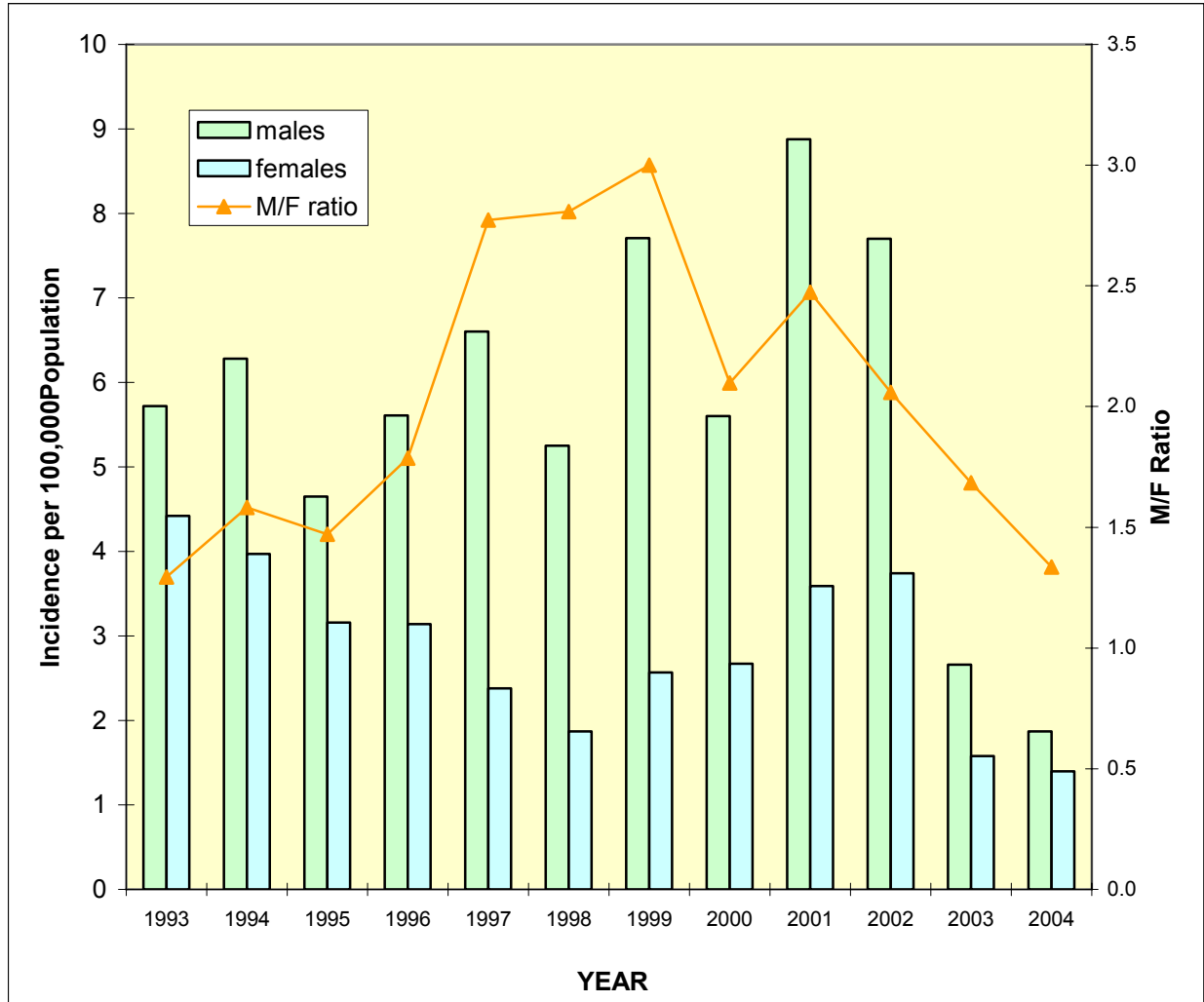
DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

**Figure 6. Incidence of Hepatitis A, by Age
Florida, 1993-2004**



DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Office of Planning, Evaluation, and Data Analysis, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

**Figure 7. Incidence of Hepatitis A, by Sex
Florida, 1993-2004**

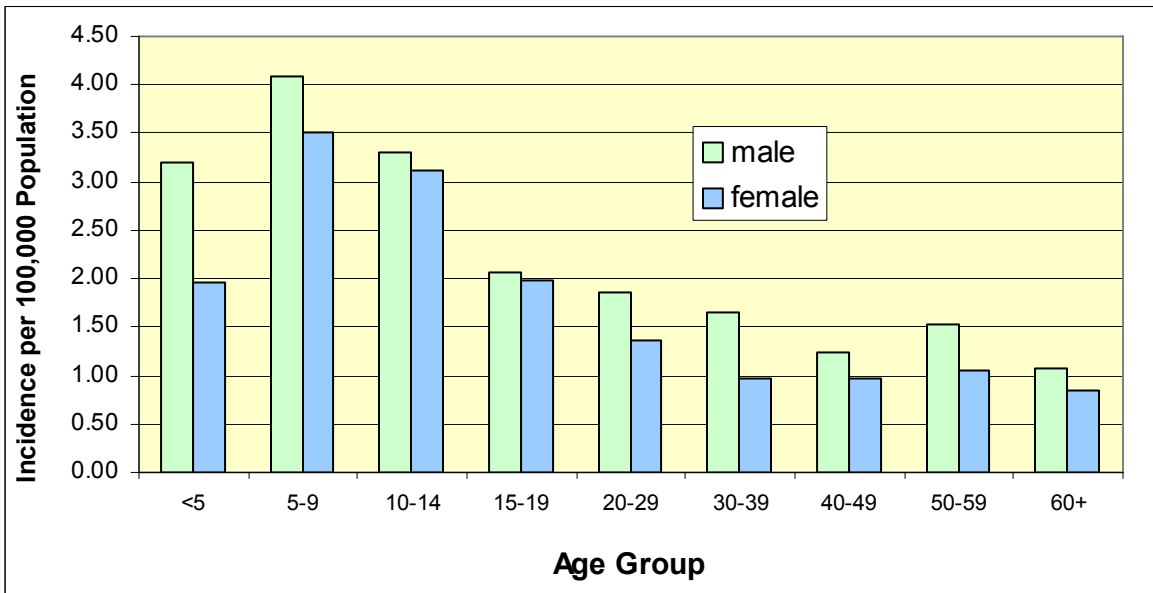


DATA SOURCE: MERLIN, Bureau of Epidemiology

POPULATION DATA: CHARTS, Office of Planning, Evaluation, and Data Analysis, Florida Department of Health
Data represent reported cases (confirmed, probable, and suspect).

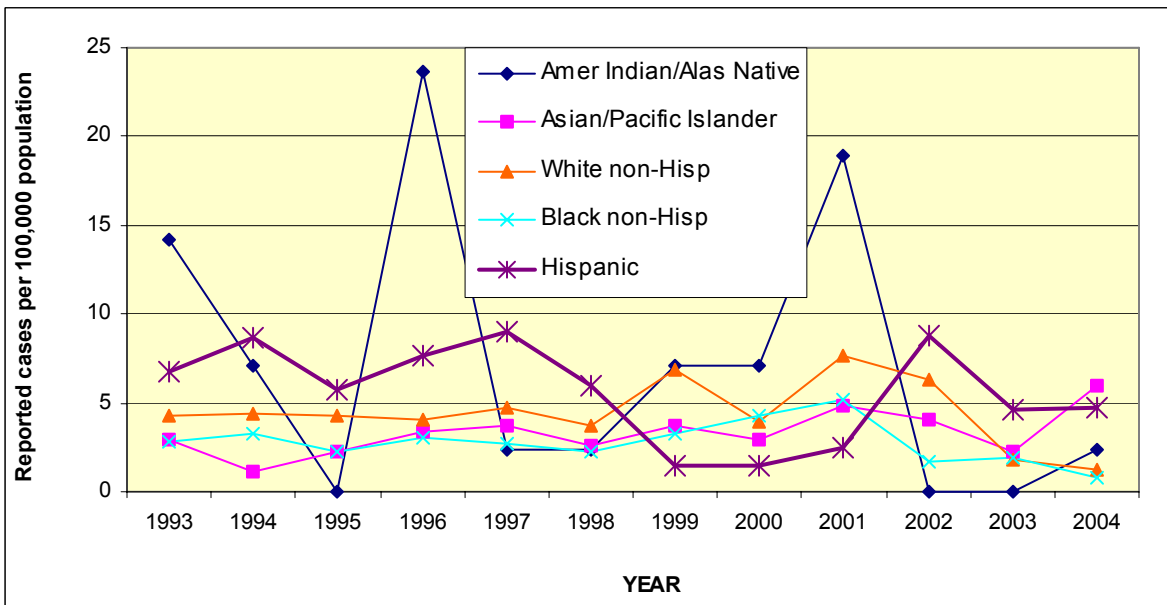
Note: The bars indicate rate per 100,000 (the left y-axis) by gender; the line is the ratio (right y-axis) of the incidence rate among males to that among females.

Figure 8. Incidence of Hepatitis A, by Age and Sex, Florida 2004



DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

Figure 9. Incidence of Hepatitis A, by Race and Ethnicity, Florida 1993-2004



DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: U.S. Census, 2000
 Data represent reported cases (confirmed, suspect, and probable).

Table 3. Epidemiologic Characteristics of Patients with Hepatitis A, by Age Florida, 2004

	Age Groups							
	<15		15 – 39		40+		Total	
	n (total)	%	n (total)	%	n (total)	%	n (total)	%
International travel* N=270	47 (107)	43.9	37 (83)	44.6	19 (80)	23.8	103	38.1
Sexual or household contact with a hepatitis A patient N=224	44 (86)	51.2	13 (71)	18.3	9 (67)	13.4	66	29.5
Other street drug use N=243	3 (103)	2.9	4 (68)	5.9	2 (72)	2.8	9	3.7
Men who have sex with men † N=138	1 (57)	1.8	3 (42)	7.1	1 (39)	2.6	5	3.6
Contact of daycare child/employee N=270	4 (105)	3.8	2 (81)	2.5	3 (84)	3.6	9	3.3
Injection drug use N=248	2 (103)	1.9	1 (71)	1.4	1 (74)	1.4	4	1.6
Child/employee in daycare center N=275	3 (106)	2.8	0 (83)	0.0	1 (86)	1.2	4	1.5

* During the 2 to 6 weeks prior to illness

† Among male cases

NOTE 1: There were 286 cases of hepatitis A reported. This table includes case reports that contained sufficient information to verify the case definition (that is, laboratory test results and clinical characteristics) and risk factor information.

NOTE 2: Risk factors in the above table are NOT mutually exclusive.

DATA SOURCE: MERLIN, Bureau of Epidemiology
Data represent reported cases (confirmed, probable, and suspect).

**Table 4. Clinical Characteristics of Patients with Hepatitis A, by Age
Florida, 2004**

YEAR	2000				2001				2002				2003				2004			
	Died		Hosp		Died		Hosp		Died		Hosp		Died		Hosp		Died		Hosp	
	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*
<5	0	0.0	0	0.0	0	0.0	1	12.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	4	16.7
5 – 14	0	0.0	22	25.0	1	0.7	29	21.2	0	0.0	34	24.2	0	0.0	12	18.5	0	0.0	25	33.3
15 - 39	2	0.8	72	27.3	0	0.0	123	30.4	0	0.0	116	28.4	0	0.0	46	37.4	1	1.1	38	44.7
40 - 59	2	1.2	47	28.1	1	0.4	80	28.3	1	0.4	83	31.4	1	1.2	31	38.3	0	0.0	19	38.0
60+	4	5.1	25	32.0	2	2.3	39	44.8	0	0.0	41	48.8	4	6.8	26	43.3	0	0.0	19	50.0
All	8	1.3	166	27.8	4	0.4	272	29.6	4	0.4	274	30.3	5	1.5	115	34.5	1	0.4	105	38.6
N	596		597		910		919		891		905		332		333		279		272	

DATA SOURCE: MERLIN, Bureau of Epidemiology
Data represent reported cases (confirmed, probable, and suspect).

- * = percent of the age group
- Calculated percentages include patients with non-missing data for age, and for one or more outcomes of interest (that is, hospitalization or death).

Acute Hepatitis B, 2004

Summary

The incidence of infection by hepatitis B virus (HBV) has declined dramatically since the implementation of a comprehensive strategy to eliminate the disease in the U.S. The primary elements of this strategy include the routine vaccination of all infants and children under 19 years old; the screening of all pregnant women for hepatitis B viral infection with the provision of post-exposure prophylaxis to infants born to infected women; and the targeted vaccination of individuals at increased risk for hepatitis B infection. The targeted groups include healthcare workers, dialysis patients, household contacts sex partners of persons with chronic infections from HBV, recipients of certain blood products, persons with a recent history of an STD or having had multiple sex partners, men who have sex with other men, and injection drug users.

Despite the dramatic decline of HBV rates among the younger age groups covered by the recommendation for routine childhood immunization, high rates of disease continue among adults, particularly males ages 25-39. A need to strengthen efforts to reach specific populations with vaccine (that is, injection drug users, men who have sex with other men, and persons with multiple sex partners) is indicated by the high proportion of cases occurring among persons in such identified risk groups. Through participating counties in Florida, hepatitis B vaccine is available at no cost for adults at increased risk for hepatitis infection or the serious consequences of infection. Integration of hepatitis programs and activities with HIV/AIDS, immunizations, STD, and correctional institutional settings has also been implemented through the county health departments, which offer vaccine, testing, and educational services.

In 1988, the Advisory Committee on Immunization Practices (ACIP), expanding on an earlier (1984) recommendation for pregnant women at high-risk for hepatitis B, recommended that all pregnant women should be tested for hepatitis B surface antigen (HBsAg) early in each pregnancy, regardless of risk. Florida law requires all pregnant women to be screened for HBV at their first prenatal exam, again in seven to eight months, and at delivery for women who present with no record of a previous blood test. Infection from hepatitis B virus can be easily identified, and transmission during birth can be prevented. Immunotherapy provided to infants of HBV-infected mothers, also mandated through Florida legislation, will prevent 97 percent of subsequent infections.

- Temporal Incidence. In Florida, the overall incidence rate of reported cases of hepatitis B in 2004 was 3.07 per 100,000 population with 537 cases reported statewide. This represents a decline of 80 percent since 1985 when incidence peaked at 15.22 per 100,000. The steady decline over the last two decades follows the national trend; however, since 1999, Florida's acute hepatitis B rate has been above the national rate (Figure 10).

- Geographical Incidence. Hepatitis B rates during the last five years have been similar for all regions, with rates slightly higher in central Florida. Pre-1997, rates were higher

Hepatitis Surveillance 2004

in the mostly rural north Florida counties, followed by those in the central region. Overall, acute hepatitis B rates in all regions of Florida have been declining for the past decade (Figures 11 and 12).

- Age. Hepatitis B rates in Florida vary by age, with the highest rates reported among persons 25-39 years old and the lowest among persons younger than 15 years old and persons 40 years old and older; this is similar to national trends. Rates have declined in all age groups. The greatest percent decline (74 percent) over the last decade occurred among young adults 15-24 years old. Although less dramatic than the decline in the 15-24 year olds, there has been an 18 percent decline in the hepatitis B rates among adults ages 25-39. These trends are similar to those seen for hepatitis B rates in the U.S. (Figure 13).

- Gender. As in previous years, acute hepatitis B rates in males continue to be higher than in females. The ratio of cases occurring among males to that occurring among females in Florida has increased slightly, but steadily, over the past decade (Figure 14).

Following national trends, the major difference in hepatitis B case rates by sex occurs only in persons older than age 15 and is greatest in persons ages 40 and older where the male/female ratio exceeds 2.0 (Figure 15).

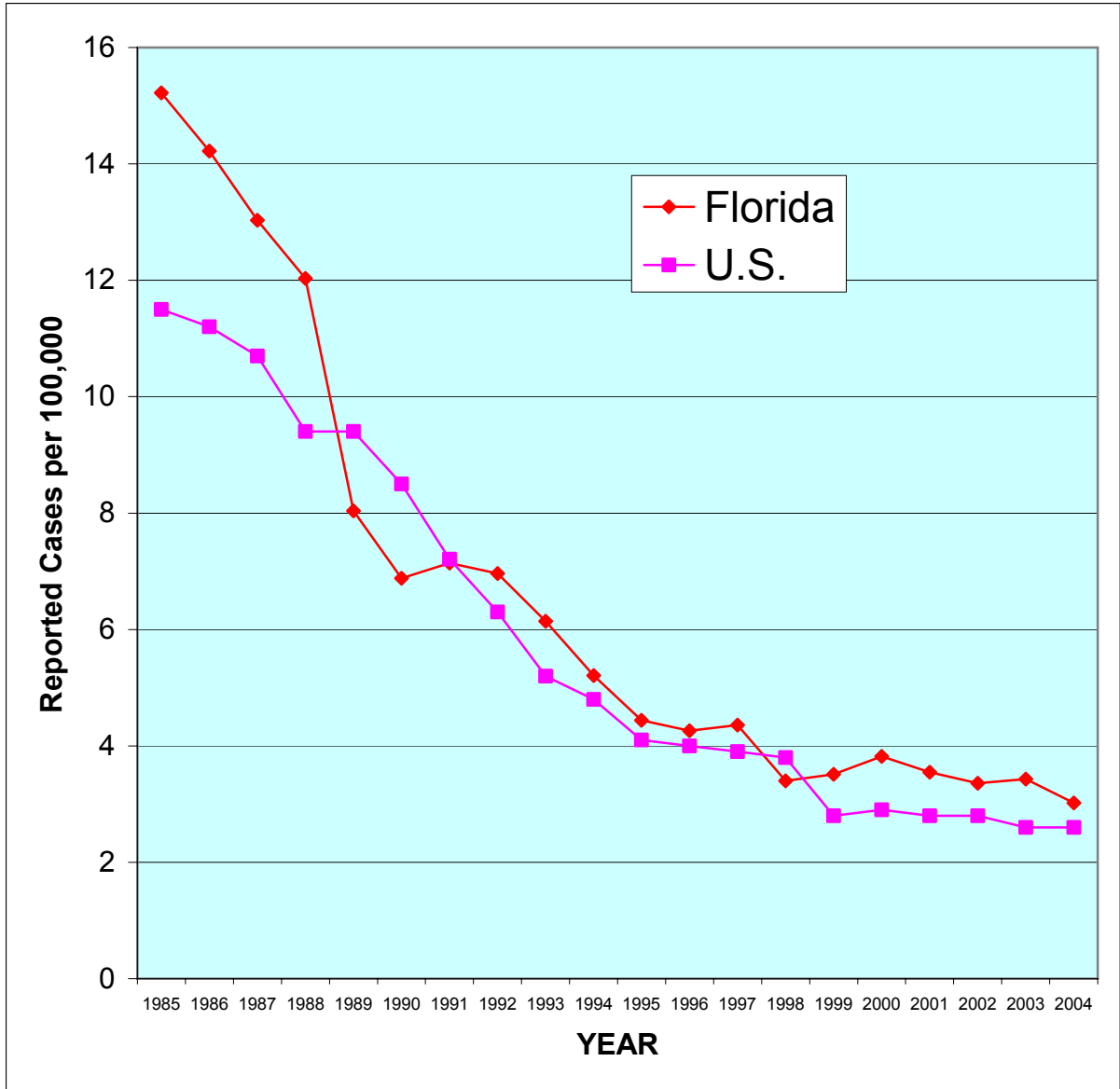
- Race and Ethnicity. Rates of acute hepatitis B continue to decline among all racial and ethnic groups. A downward trend in rate has been observed in the Black non-Hispanic and American Indian/Alaskan Native populations during the last decade. However, rates of hepatitis B in 2004 remained highest among non-Hispanic Blacks (7.29/100,000) and lowest among non-Hispanic Whites (2.57/100,000) and American Indians/Alaskan natives (2.36/100,000) (Figure 16). Unlike hepatitis A, rates of hepatitis B among Hispanics have historically been lower than among either non-Hispanic Whites or non-Hispanic Blacks. In 2004, however, the hepatitis B rate for Hispanics (3.28/100,000) was similar to that of non-Hispanics (Figure 17).

- Risk Factors. Among cases for which information about exposures were reported, 39 percent were among those reporting multiple sex partners; 28 percent were associated with ever having been incarcerated more than 24 hours and 17.5 percent with recent incarceration of more than 24 hours; 26 percent were among men who have sex with other men; 22 percent were among persons who were ever treated for a STD; and, 7 percent were associated with having had a tattoo (Table 5). Receiving blood transfusion or hemodialysis, both of which were previously major sources of infection, are now reported for 3 percent or fewer cases (3.0 percent and 0.0 percent, respectively). Similarly, the percentage of cases reported for occupational exposure to blood has declined due to widespread hepatitis B vaccination among health-care workers; and, in 2004, in Florida, the percentage was approximately 1.5 percent.

- Clinical Characteristics. Among reported acute hepatitis B cases in 2004, 51 percent were hospitalized because of their illness and fewer than 1 percent died. The proportion (100 percent) of cases hospitalized for their hepatitis is greatest among

persons younger than five years old, followed by those age 60 and older (61 percent). Deaths occurred in the age groups 15-39 years and 60 years and older (Table 6).

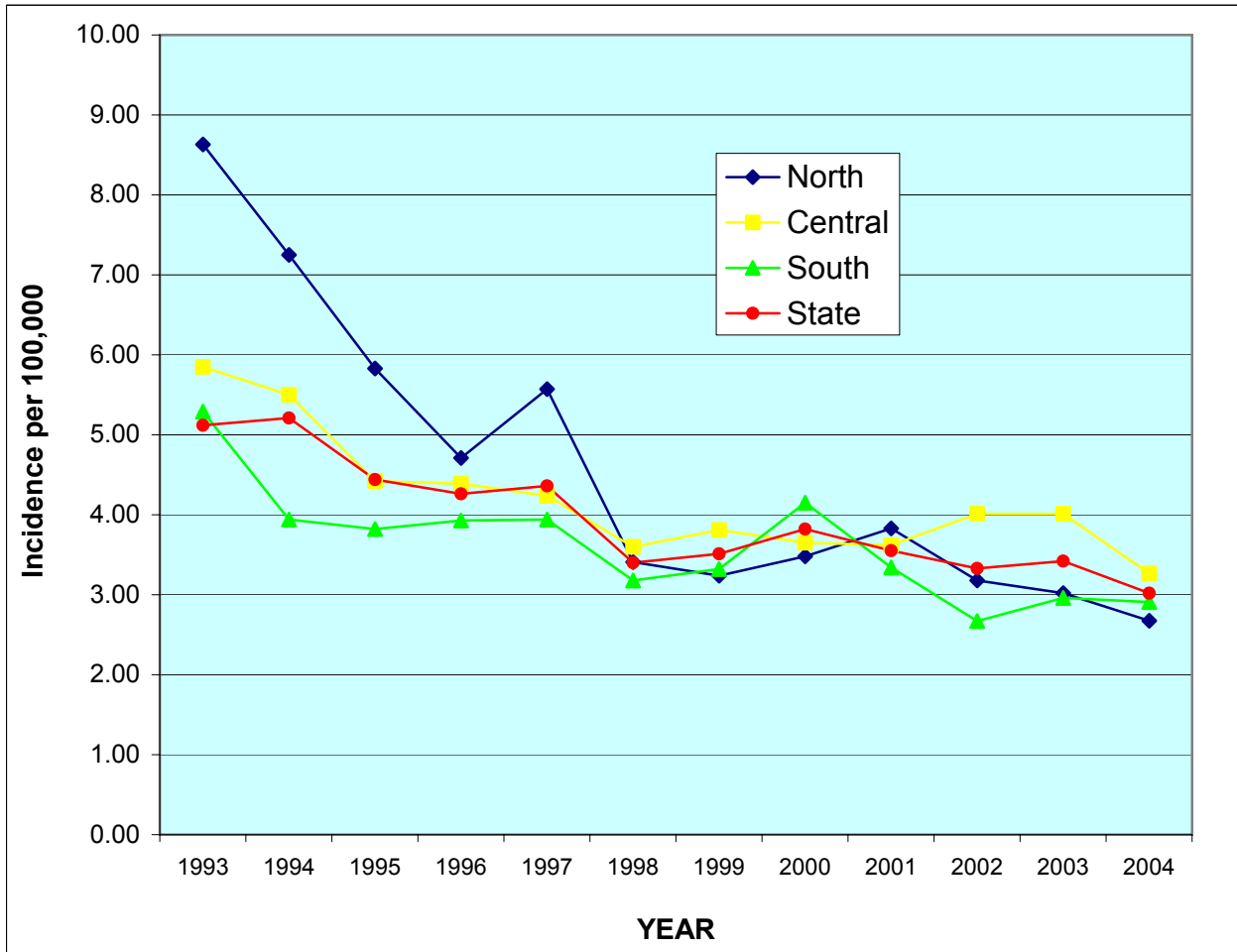
Figure 10. Incidence of Acute Hepatitis B, Florida and U.S., 1985-2004



Data Source: Bureau of Epidemiology, MERLIN (1992-2003) and Florida Morbidity Statistics (1985-1991)
Data represent reported cases (confirmed, probable, and suspect).
U.S. Data: National Notifiable Diseases Surveillance System

POPULATION DATA: CHARTS, Florida, Department of Health

Figure 11. Incidence of Acute Hepatitis B, by Region, Florida, 1993-2004



Data Source: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Office of Planning, Evaluation, and Data Analysis, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

Regional Categories
 (see map, page 4)

North: Area 1, Area 2A, Area 2B, Area 3, and Area 4

Central: Area 5, Area 6, Area 7, Area 12, Area 13, Area 14, and Area 15

South: Area 8, Area 9, Area 10, Area 11A, and Area 11B

Figure 12. Incidence of Acute Hepatitis B, by County Florida, 2004

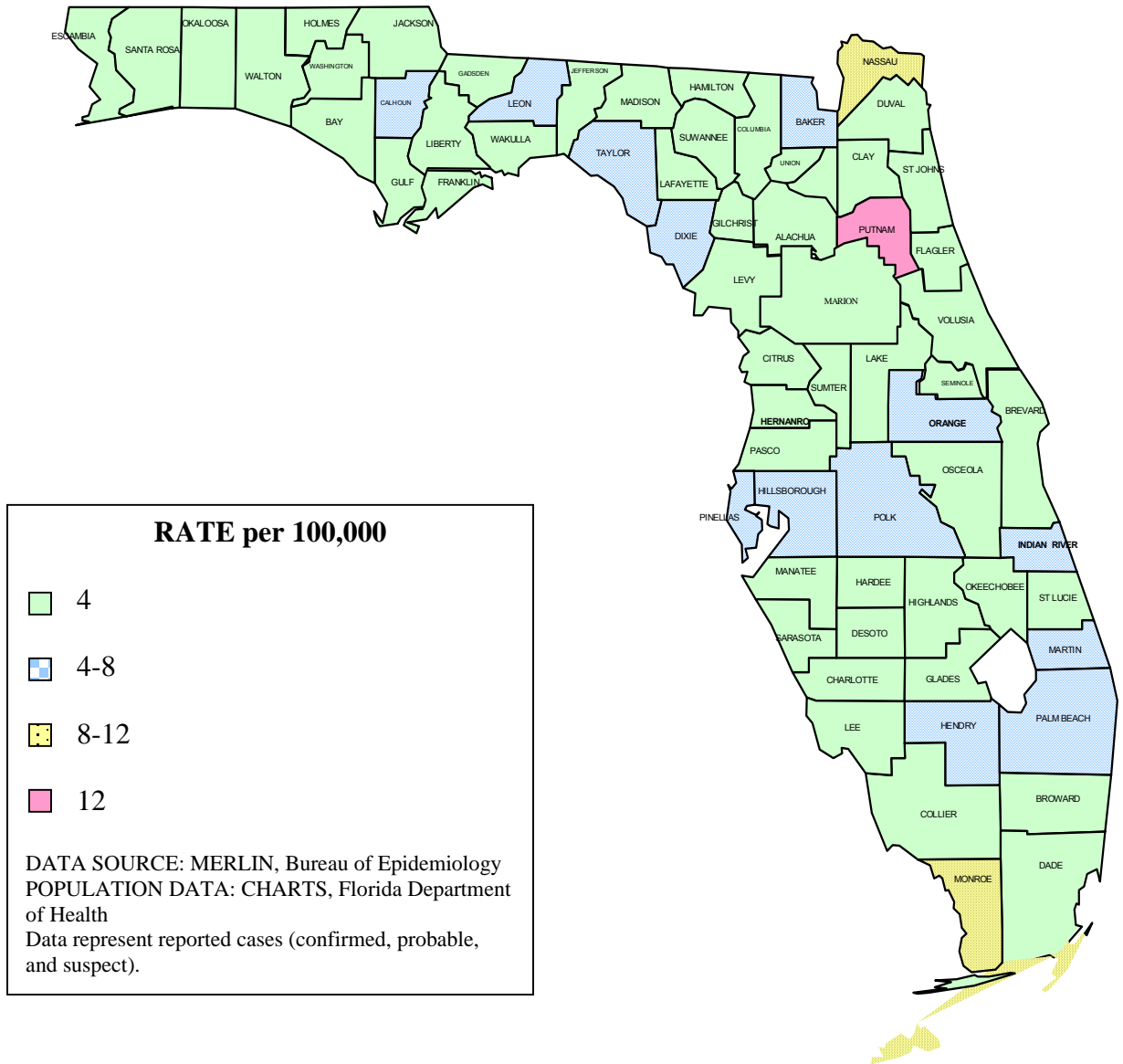
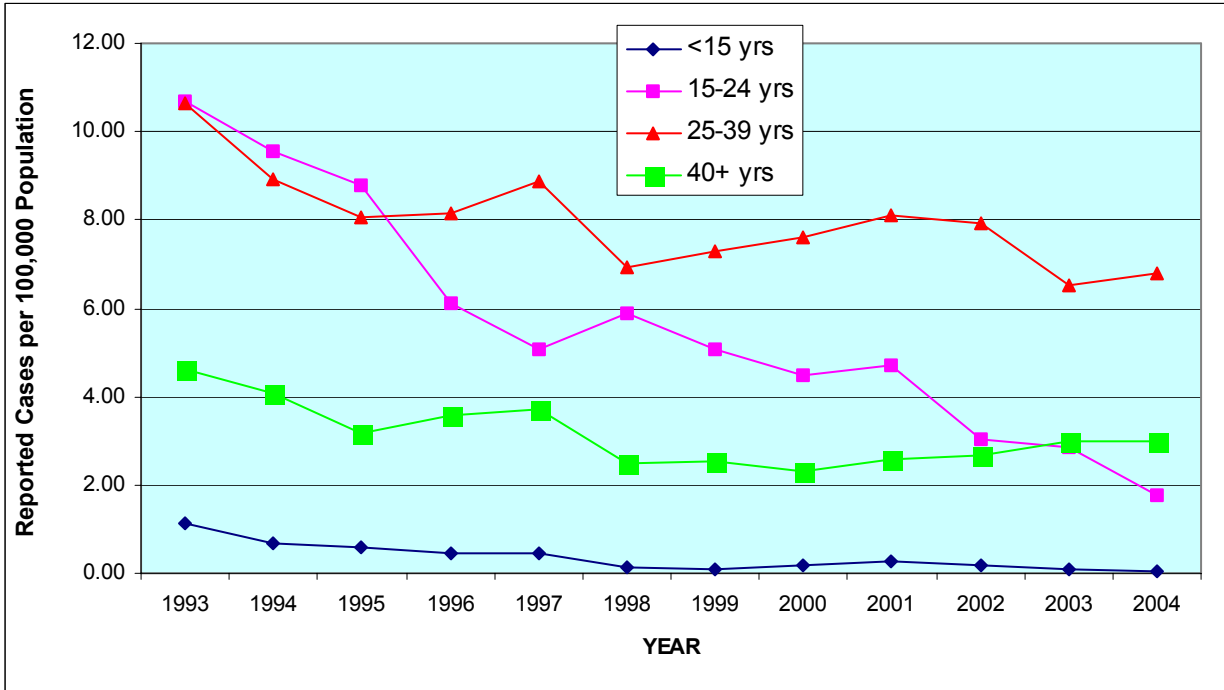
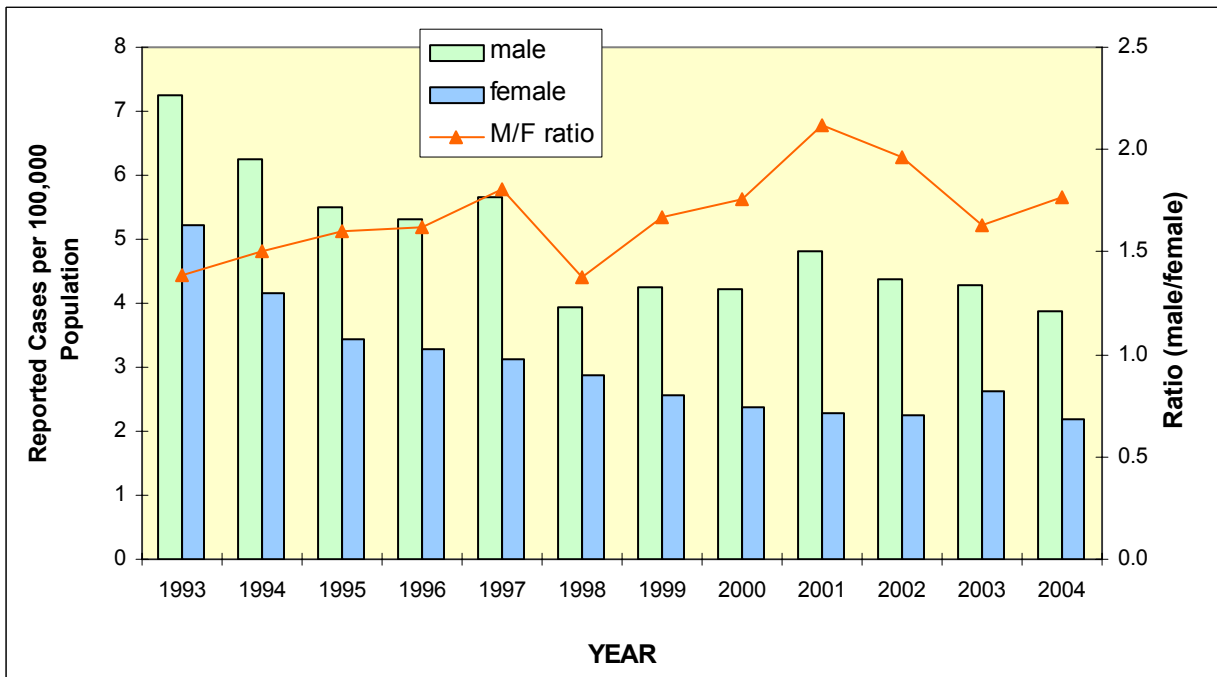


Figure 13. Incidence of Acute Hepatitis B, by Age, Florida, 1993–2004



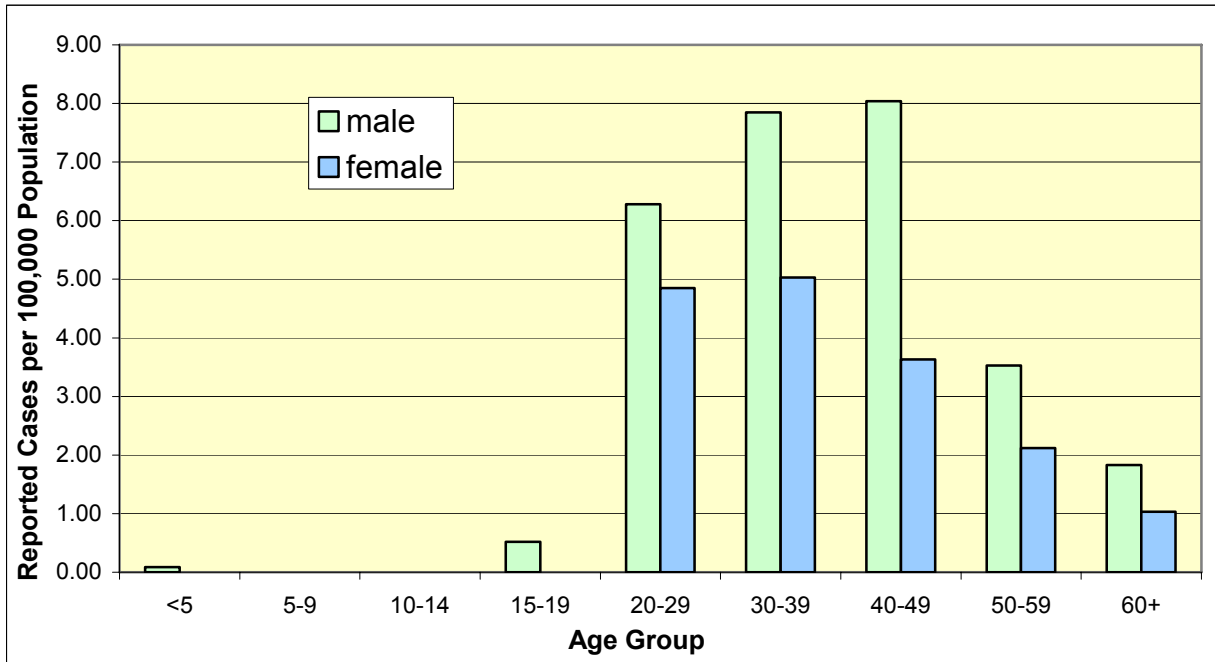
DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

Figure 14. Incidence of Acute Hepatitis B, by Sex, Florida, 1993-2004



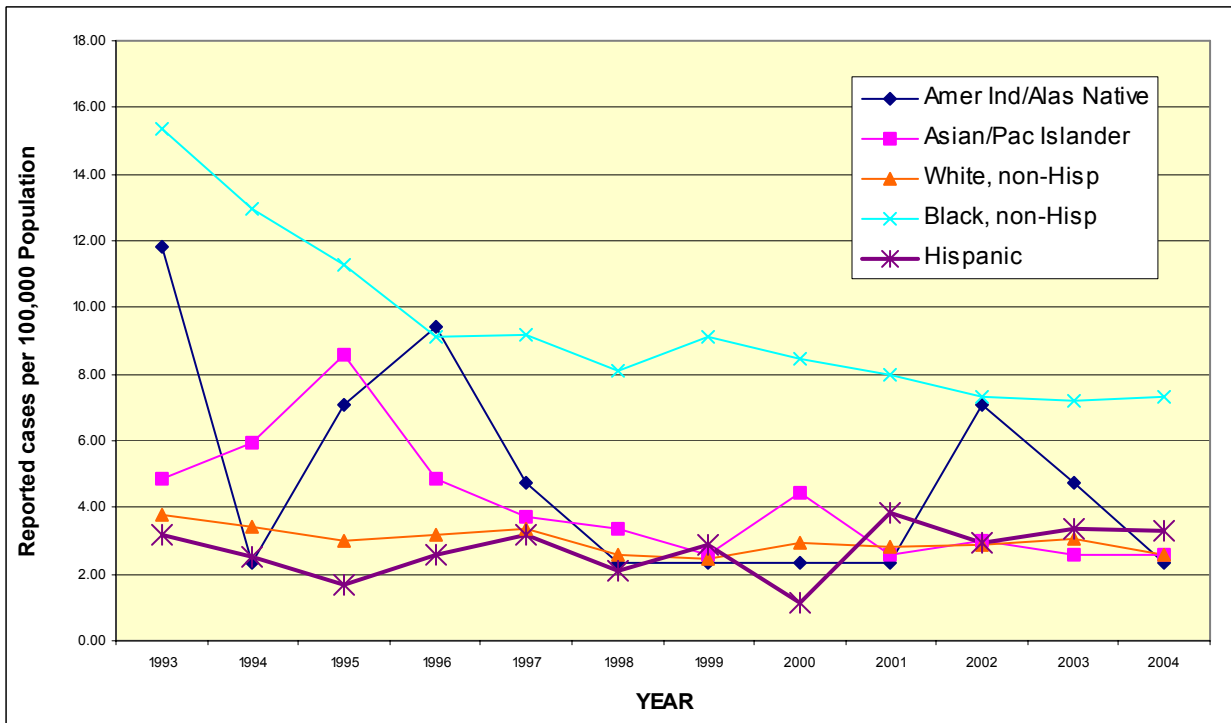
DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

Figure 15. Incidence of Acute Hepatitis B, by Age and Sex, Florida, 2004



DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

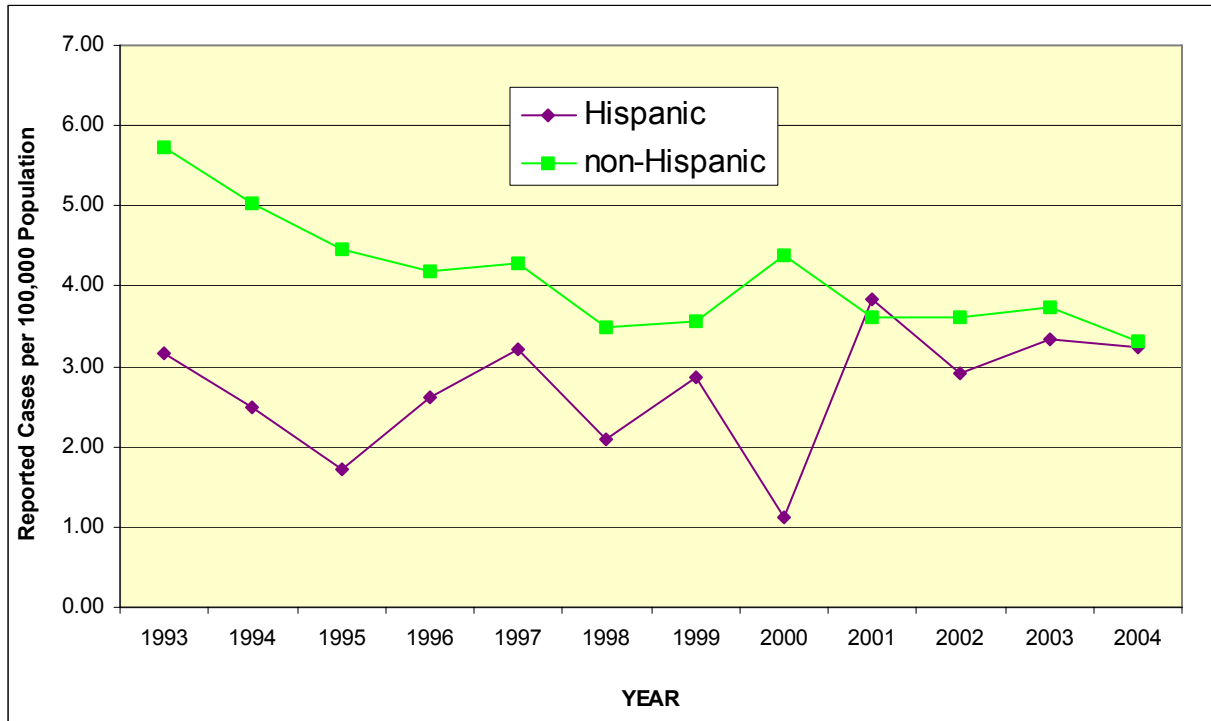
Figure 16. Incidence of Acute Hepatitis B, by Race and Ethnicity, Florida, 1993-2004



DATA SOURCE: MERLIN, Bureau of Epidemiology

POPULATION DATA: U.S. Census, 2000

Figure 17. Incidence of Acute Hepatitis B, by Ethnicity, Florida, 1993-2004



DATA SOURCE: MERLIN, Bureau of Epidemiology
POPULATION DATA: U.S. Census, 2000
Data represent reported cases (confirmed, probable, and suspect).

Table 5. Epidemiologic Characteristics of Patients with Hepatitis B, by Age, Florida, 2004

	Age Groups					
	<40		≥40		Total	
	n (total)	%	n (total)	%	n	%
Multiple sex partners N=409	97 (209)	61.0	62 (200)	39.0	159	38.9
Ever incarcerated >24 hours N=411	65 (207)	31.4	49 (204)	24.0	114	27.7
Men Who Have Sex with Men [†]	32	28.6	31	24.4	63	26.4
Ever treated for an STD N=373	45 (190)	23.7	37 (183)	20.2	82	22.0
Recent incarceration >24 hours N=424	43 (215)	20.0	31 (209)	14.8	74	17.5
Dental/Oral surgery N=419	25 (213)	11.7	40 (206)	19.4	65	15.5
Sexual or household contact with hepatitis B patient N=323	21 (159)	13.5	23 (164)	14.0	44	13.6
Injection drug use N=434	24 (217)	11.1	10 (217)	4.6	34	7.8
History of tattoo N=419	22 (210)	10.5	8 (209)	3.8	30	7.2
Body piercing N=411	16 (206)	7.8	4 (205)	2.0	20	4.9
Blood transfusion/blood products N=440	3 (225)	1.3	10 (215)	4.7	13	3.0
Hemodialysis	0	0.0	0	0.0	0	0.0

[†]Among male cases
DATA SOURCE: MERLIN, Bureau
of Epidemiology.

NOTE 1: There were 532 cases of hepatitis B reported. This table only includes case reports that contained sufficient information to verify the case definition (that is, laboratory test results and clinical characteristics).

NOTE 2: Risk factors in the above table are NOT mutually exclusive.

**Table 6. Clinical Characteristics of Patients with Hepatitis B, by Age
Florida, 2004**

YEAR	2000				2001				2002				2003				2004			
	Died		Hosp		Died		Hosp		Died		Hosp		Died		Hosp		Died		Hosp	
Age	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*	n	%*
<5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	1	100.0		
5 – 14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15 - 39	1	0.4	103	39.3	1	0.4	96	35.7	1	0.4	105	41.7	1	0.4	105	44.5	1	0.4	124	47.3
40 - 59	3	1.5	82	39.6	2	0.9	69	33.2	1	0.5	81	37.8	2	0.8	119	47.4	0	0.0	102	52.6
60+	3	5.1	31	51.7	1	0.2	26	45.6	0	0.0	23	47.9	2	4.1	24	47.1	1	2.0	30	61.2
All	7	1.4	216	40.8	4	0.4	191	35.7	2	0.9	209	40.6	5	0.9	249	46.2	2	0.4	257	50.8
N	518		529		542		535		519		515		531		539		509		506	

DATA SOURCE: MERLIN, Bureau of Epidemiology
Data represent reported cases (confirmed, probable, and suspect).

*percent of the age group
Calculated percentages include patients with non-missing data for age and for one or more outcomes of interest (that is, hospitalization or death).

Acute Hepatitis C

Summary

The Hepatitis C viral infection is the most common, chronic, blood-borne infection in the United States, with an estimated 4 to 5 million persons infected and 2.7 million of these chronically infected. Unlike hepatitis A and hepatitis B, there is no effective vaccine against this virus. In 1998, national recommendations, which addressed specific primary prevention activities to reduce the risk for viral transmission, were issued for the prevention and control of HCV. These activities include screening and testing of blood donors, viral-inactivation of plasma-derived products, risk-reduction counseling and services, and implementation and maintenance of infection control practices.

Since the late 1980s, the incidence of acute hepatitis C has been declining nationally, due largely to a decrease in cases reported among injecting drug users, although reasons for this are unknown. However, the majority of hepatitis C cases continue to occur in adult age groups (persons older than age 25), with injecting drug use the most commonly identified risk factor for infection. An important risk factor for infection in the past – transmission associated with transfusion – is now rarely reported. A continual decline of newly reported cases is expected due to the impact of ongoing prevention programs.

The actual number of individuals in Florida with either acute or chronic hepatitis C is unknown. However, 51 cases of acute hepatitis C were reported to the state in 2004. This incidence (0.29 per 100,000 population), is a 73 percent decrease from the 1997 case rate (1.00) and may be due to both decreasing incidence, as well as underreporting. Prior to 1998, when hepatitis C became reportable in Florida, case reports of hepatitis C were classified as “non-A, non-B.”

Confirming an acute hepatitis C case requires considerable effort on the part of the reporting sources. In addition, many acute cases are most likely missed because they go unrecognized or fall outside the reporting criteria. While reporting criteria for acute disease appear clear-cut, there are many challenges affecting accurate reporting. Laboratory tests for HCV do not distinguish among acute, chronic, or past infections, and because an estimated 60-70 percent of persons who contract the virus have no distinct symptoms, the infection may go undiagnosed.

Chronic hepatitis C infection is the most common blood-borne infection in the United States. An estimated four million Americans (1.8 percent), including approximately 300,000 Floridians, are infected with HCV. Because they are not clinically ill, most of these persons are unaware of their infection. However, 70-80 percent of chronically infected persons develop chronic liver disease with an increased risk for development of cirrhosis and liver cancer. In the United States, HCV is estimated to be the cause of 40-60 percent of the cases of chronic liver disease and 8,000 to 10,000 deaths annually.

- Temporal Incidence. The rate of reported acute hepatitis C cases in 2004 is 0.29 per 100,000 population with 51 cases reported statewide. The last five-year average case rate

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for HCV/NA-NB was 0.35 per 100,000 population. Following national trends, rates for hepatitis C/NA-NB in Florida have been declining since 1985, when the highest rate (3.14), representing 356 cases, was recorded (Figure 18).

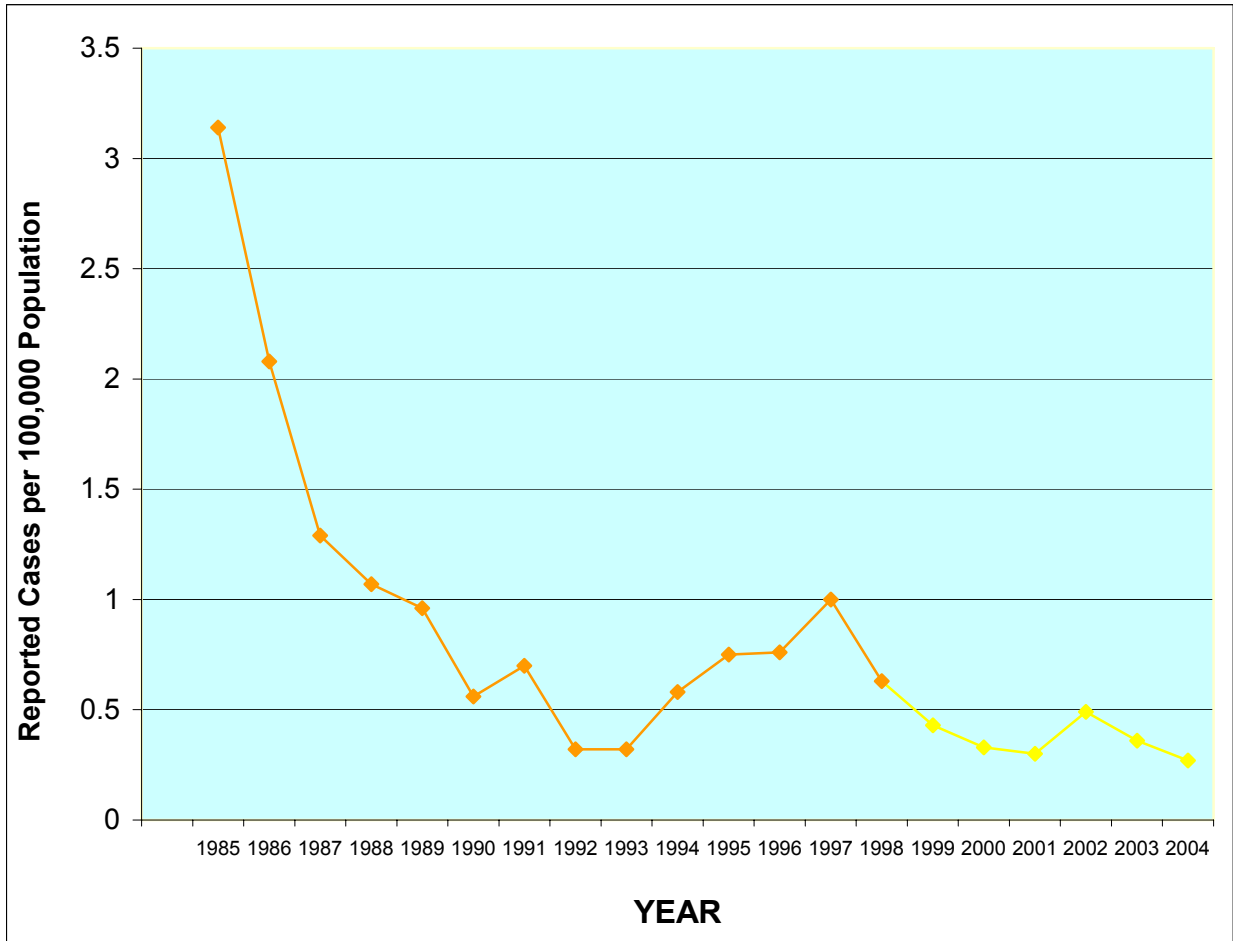
- Geographical Incidence. Historically, reported acute hepatitis C case rates have varied throughout the regions of the state. In 2004, 17 of Florida's 67 counties reported one or more cases of disease (Figure 19), compared to reports from 26 counties in 2002 and 17 in 2004.
- Age. Acute hepatitis C rates have been declining in all age groups since the mid- to late nineties with the greatest decline seen among 25-39 year olds, the age group historically with the highest rates of disease. Few cases are reported in persons 15 years old (Figure 20).
- Gender. Historically, the rate of acute hepatitis C among males has been higher than among females for most years. The ratio of cases occurring among males to those among females has varied considerably over the past decade (Figure 21).

The difference in rates by sex is greatest in persons 30 to 39 years old (Figure 22).

- Race and Ethnicity. Hepatitis C/NA-NB acute case rates vary by race and ethnicity. Nationally, hepatitis C/NA-NB rates have declined in all racial groups since 1995, but with higher incidence rates reported among non-Hispanic Blacks and American Indian/Alaskan Native populations.

In Florida, hepatitis C/NA-NB rates among Hispanics over the last decade have generally been lower than the rates for non-Hispanic White and non-Hispanic Black populations (Figure 23).

Figure 18. Incidence of Acute Hepatitis C/NA-NB, Florida, 1985-2004



Data Source: Bureau of Epidemiology, MERLIN (1992-2003) and Florida Morbidity Statistics (1984-1991)
POPULATION DATA: CHARTS, Florida Department of Health
Data represent reported cases (confirmed, probable, and suspect).

▲ The years 1984 through 1998 represent reports of hepatitis NA-NB. Counties began reporting hepatitis C in 1999.

Figure 19. Incidence of Acute Hepatitis C, by County Florida, 2004

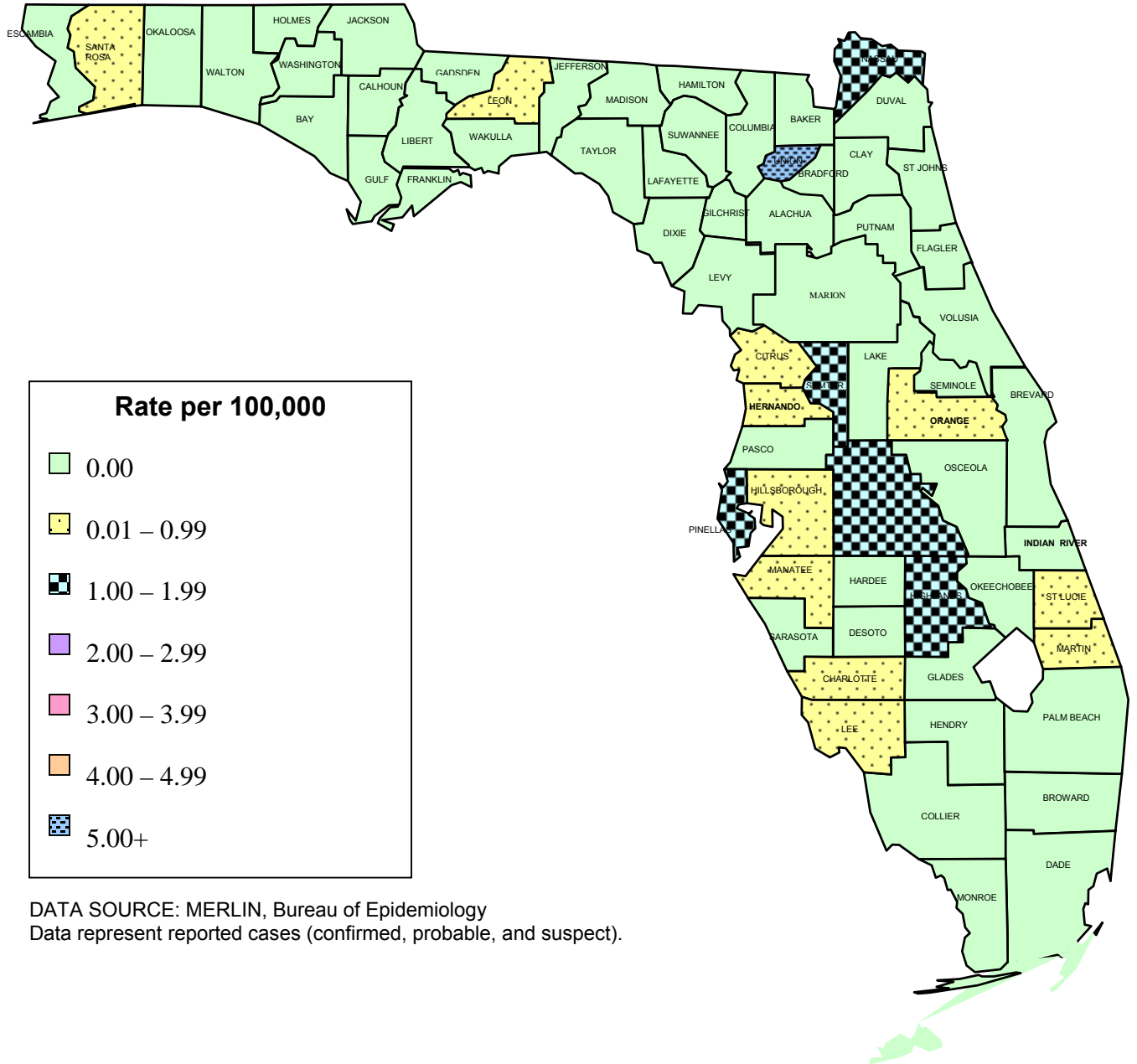
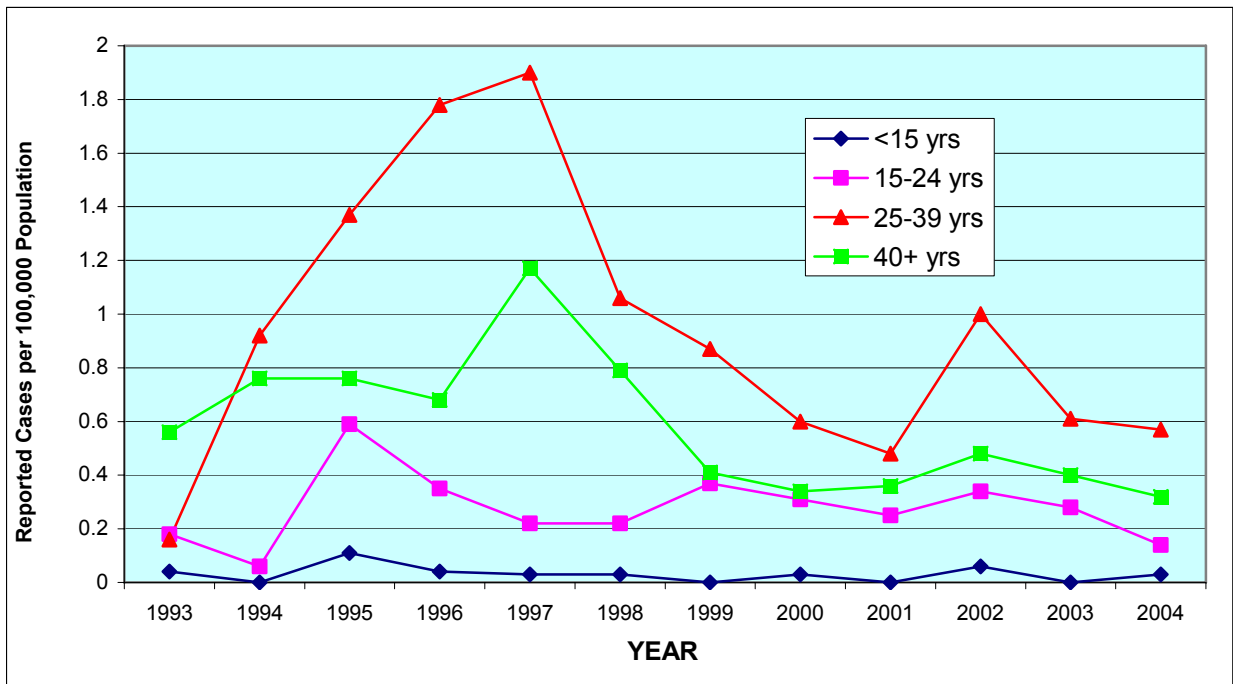
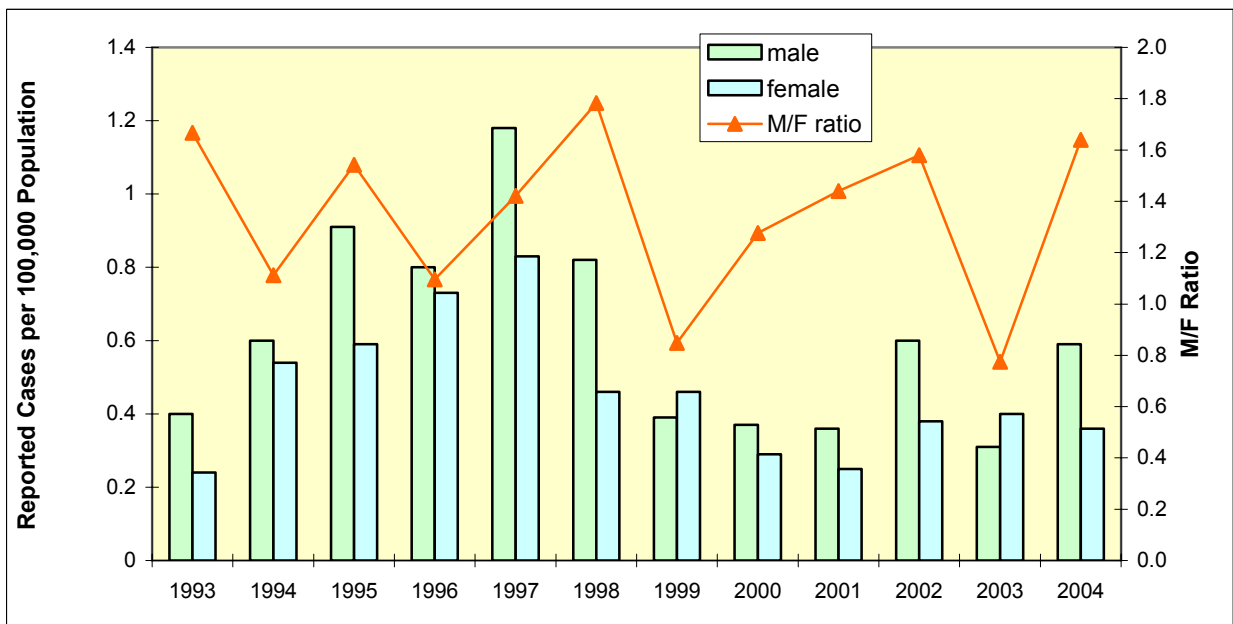


Figure 20. Incidence of Acute Hepatitis C/NA-NB, by Age, Florida, 1993-2004



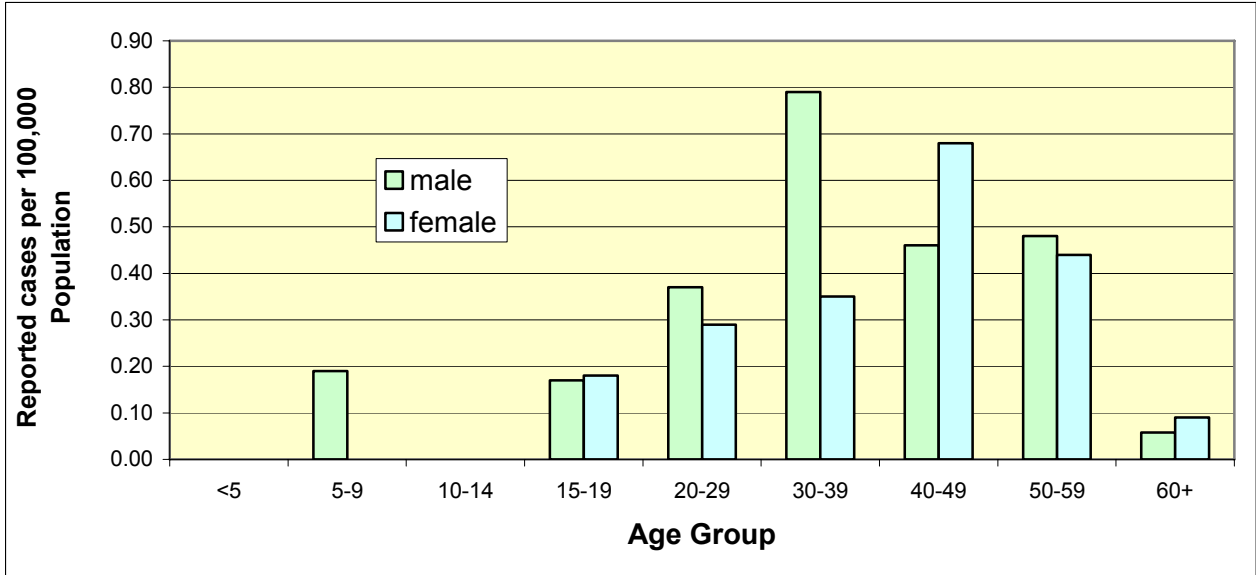
DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

Figure 21. Incidence of Acute Hepatitis C/NA-NB, by Sex, Florida, 1993-2004



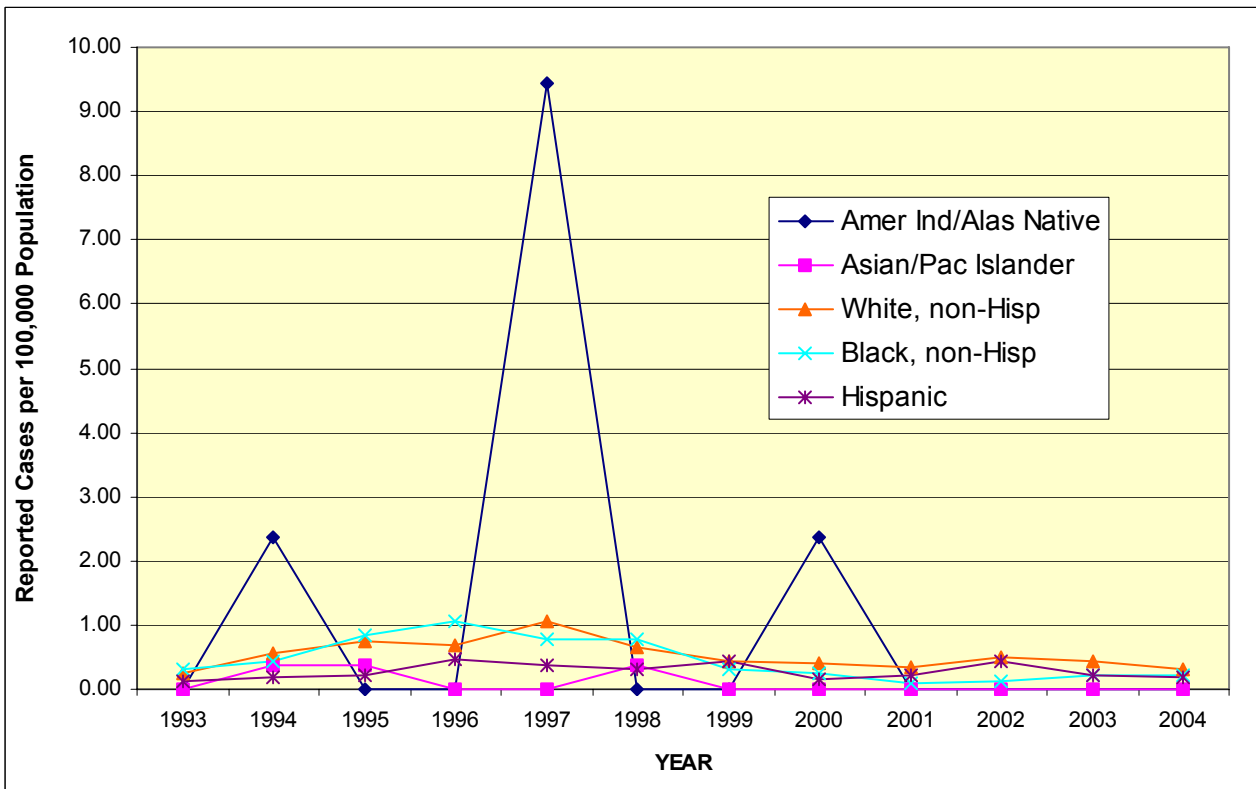
DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

Figure 22. Incidence of Acute Hepatitis C, by Age and Sex, Florida, 2004



DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

Figure 23. Incidence of Acute Hepatitis C, by Race and Ethnicity, Florida, 1993-2004



DATA SOURCE: MERLIN, Bureau of Epidemiology
 POPULATION DATA: CHARTS, Florida Department of Health
 Data represent reported cases (confirmed, probable, and suspect).

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Table 7. Epidemiologic Characteristics* of Patients with Acute Hepatitis C, by Age Florida, 2004

		Age Groups					
		<40 years		40+ years		Total	
		n (total)	%	n (total)	%	n	%
Hepatitis contact	N=28	9 (14)	64.3	4 (14)	28.6	13	46.4
Multiple sex partners†	N=35	11 (20)	55.7	2 (15)	13.3	13	37.1
Injection drug use	N=36	6 (21)	28.6	4 (15)	26.7	10	27.8
Dental or oral surgery	N=37	3 (21)	14.3	3 (16)	18.8	6	16.2
Tattoo	N=37	4 (20)	20.0	0 (17)	0.0	4	10.8
Employment in medical/dental field	N=40	1 (23)	4.3	3 (17)	17.6	4	10.0
Blood transfusion	N=37	1 (21)	4.8	2 (16)	12.5	3	8.1
Other‡	N=36	2 (21)	9.5	1 (16)	6.2	3	8.1

* Crude frequency

† More than one sex partner

‡ OTHER: case reported one or more of the following exposures – surgery other than oral or other percutaneous exposure.

Data represent reported cases (confirmed, probable, and suspect).

Table 8. Clinical Characteristics of Patients with Acute Hepatitis C, by Age Florida, 2004

YEAR	2000		2001		2002		2003		2004											
	Died		Hosp		Died		Hosp		Died		Hosp									
	n	%*	n	%	n	%	n	%	n	%	n	%								
<5	0	0.0	0	0.0	0	0.0	2	66.7	0	0.0	0	100.0	0	0.0	3	17.6				
5 – 14	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0				
15 - 39	0	0.0	7	41.2	0	0.0	7	50.0	0	0.0	15	41.7	0	0.0	6	31.6	1	5.3	11	52.4
40 - 59	0	0.0	5	29.4	0	0.0	14	53.8	0	0.0	17	46.0	0	0.0	18	58.1	0	0.0	16	76.2
60+	0	0.0	4	50.0	0	0.0	1	16.7	0	0.0	2	66.7	0	0.0	3	75.0	0	0.0	2	100.0
All	0	0.0	16	38.1	0	0.0	22	47.8	0	0.0	36	50.67	0	0.0	27	50.0	1	2.2	29	64.4
N	41		42		44		46		69		71		53		54		45		45	

• * = percent of the age group

• Calculated percentages include patients with non-missing data for age and for one or more outcomes of interest (that is, hospitalization or death).

Data represent reported cases (confirmed, probable, and suspect).

Future Directions

Acute Viral Hepatitis Surveillance in Florida

- Hepatitis A. To determine if the dramatic decline in rates that has occurred following the introduction of hepatitis A vaccines and the implementation of a comprehensive viral hepatitis prevention and control program in this state are sustained and attributable to such activities, continued monitoring of state-specific acute disease incidence rates is needed. Enhanced investigation of cases reported in populations for which vaccination is recommended (for example, men who have sex with men) is also appropriate to ensure that additional cases might be prevented.
- Hepatitis B. With ongoing vaccination of infants and children, it is expected that the number of cases occurring in these populations will continue to decline. However, the continual analysis of surveillance data is needed to provide critical information to assess any needed or indicated strategies for eliminating hepatitis B in the state. Enhanced investigation of cases reported in specific populations at risk (for example, healthcare workers, men who have sex with men, multiple sex partners) can assist in determining vaccination status and in identifying settings in which these individuals might be reached with vaccine prior to infection.
- Hepatitis C/NA-NB. The incidence of acute hepatitis C continues to decline and outbreaks are rare. However, to identify and control ongoing sources of transmission, investigation of any new infection is essential. Case investigation efforts to identify outbreaks associated with healthcare or other unusual settings, or in persons who do not have typical risk factors for hepatitis C infection, are also needed. In Florida, case investigation efforts are focused on cases of suspected acute disease or documented cases of seroconversion rather than on chronic case investigations. Reporting of acute hepatitis C may benefit from the expansion of screening activities, the use of increasingly sensitive diagnostic tests, an increased emphasis on case reporting from laboratories, and improvements to information systems used for reporting.
- Chronic Viral Hepatitis Surveillance. Prior to 2000, surveillance in Florida was conducted for cases of acute disease only. The Council of State and Territorial Epidemiologists voted in June 2002 to include chronic hepatitis B and hepatitis C infections (past or present) in the list of nationally notifiable diseases. Florida requested in mid-1999 that counties begin reporting such cases, and in 2001, added capacity for web-based electronic reporting. With these data, Florida may be able to determine the characteristics of persons being identified with chronic infection and provide data that can be used to describe the local burden of disease for planning and funding purposes.

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• Healthy People 2010. In January 2000, the CDC released objectives for Healthy People 2010 (HP 2010). The HP 2010 targets for the diseases addressed in this report are:

- ▲ 14-1. Reduce or eliminate indigenous cases of vaccine-preventable diseases.
 - 14-1d. Hepatitis B (persons aged 2 to 18 years)
- ▲ 14-2. Reduce chronic hepatitis B virus infections in infants and young children (perinatal infections).
- ▲ 14-3. Reduce hepatitis B.
 - Adults
 - 14-3a. 19 to 24 years
 - 14-3b. 25 to 39 years
 - 14-3c. 40 years and older
 - High-risk groups
 - 14-3d. Injection drug users
 - 14-3e. Heterosexually active persons
 - 14-3f. Men who have sex with men
 - 14-3g. Occupationally exposed workers
- ▲ 14-6. Reduce hepatitis A.
- ▲ 14-9. Reduce hepatitis C.
- ▲ 14-10. (Developmental) Increase the proportion of persons with chronic hepatitis C infection identified by state and local health departments.
- ▲ 14-28. Increase hepatitis B vaccine coverage among high-risk groups.
 - 14-28a. Long-term hemodialysis patients
 - 14-28b. Men who have sex with men
 - 14-28c. Occupationally exposed workers

References

- ¹CDC. *Hepatitis surveillance report No. 58*. Washington, DC: U.S. Department of Health and Human Services, 2003.
- ²CDC. "Prevention of hepatitis A through active or passive immunization. Recommendations of the Advisory Committee on Immunization Practices (ACIP)," *MMWR*, 45(RR:15).
- ³CDC. "Prevention of hepatitis A through active or passive immunization. Recommendations of the Advisory Committee on Immunization Practices (ACIP)," *MMWR*, 48(RR:12).
- ⁴CDC. "Hepatitis B virus: A comprehensive strategy for eliminating transmission in the United States through universal childhood vaccination," *MMWR*, 40(RR:13).
- ⁵Alter, MJ et al. "The prevalence of hepatitis C virus infection in the United States," *NEJM*, 341:556-62.
- ⁶CDC. "Recommendations for the prevention and control of hepatitis C virus (HCV) infection and HCV-related chronic disease," *MMWR*, 47(RR:19).
- ⁷USDHHS. *Healthy People 2010*, second edition. Washington, DC: U.S. Government Printing Office, November 2000.