

## CHAPTER 9

# Primary Liver Cancer

James E. Everhart, M.D., M.P.H.

The major malignant neoplasm of the liver is liver cell cancer (hepatocellular carcinoma). Also included in this category in this report are the rare malignancies of hepatoblastoma and angiosarcoma as well as other primary specified and unspecified liver carcinomas. Intrahepatic bile duct carcinoma is included among bile duct cancers (see Appendix 1 for ICD codes).

In 2004, primary liver cancer occurred at an earlier age than any other digestive system cancer, with 50 percent of cases being diagnosed under the age of 65 years (Table 1). Hepatoblastoma, although the most common liver neoplasm among children, had minimal influence on this association because of its rarity. Incidence was lowest among non-Hispanic whites, intermediate among non-Hispanic blacks and Hispanics, and highest among Asians and American Indians. Males had more than 3 times the age-adjusted incidence of females.

The incidence of primary liver cancer rose modestly between 1979 and 1988 (14.5 percent) and more rapidly subsequently (90 percent over the period 1988–2004) (Figure 1). Liver cancer was one of the most lethal digestive system cancers, although 5-year survival did increase nearly fourfold during this period, albeit to only 8 percent.

Medical care visits and hospitalizations for liver cancer were too infrequent in 2004 to make firm statements about them. Hospitalization discharge rates (Table 2) had a demographic pattern similar to incidence rates (Table 1), with the highest rates among patients age 65 years and older, blacks, and males. Hospitalization rates more than doubled from 1984 to 2004 (Figure 2), also in keeping with the increase in incidence.

Death rates increased with age, but not as markedly as in other digestive system cancers (Table 3). Age-adjusted death rates were higher among blacks and males. Because of its increasing incidence and poor survival, primary liver cancer has contributed an increasing number and proportion of deaths, although it accounted for only 4.7 percent of all deaths from digestive system cancers in 2004. Because of the relatively early age of onset, it accounted for a higher proportion of YPLL due to digestive system cancers (7.7 percent). As with incidence, mortality rate increased, although not as quickly. The mortality rate increased 75 percent between 1979 and 2004 (Figure 3).

**Table 1.** Primary Liver Cancer: Number of Cases and Incidence Rates by Age, Race/Ethnicity, and Sex, 2004

DEMOGRAPHIC CHARACTERISTICS		Number of Cases	INCIDENCE PER 100,000	
			Unadjusted	Age-Adjusted
<b>AGE (Years)</b>	Under 15	165	0.3	—
	15–44	856	0.7	—
	45–64	7,863	11.2	—
	65+	8,093	23.7	—
<b>RACE/ETHNICITY</b>	Non-Hispanic White	9,507	4.9	4.2
	Non-Hispanic Black	2,244	6.6	8.3
	Hispanic	1,894	4.7	9.0
	Asian/Pacific Islander	1,414	11.5	12.9
	American Indian/Alaska Native	151	8.2	10.0
<b>SEX</b>	Female	4,350	3.0	2.8
	Male	11,827	8.5	9.4
<b>TOTAL</b>		16,260	5.7	—

SOURCE: Surveillance, Epidemiology, and End Results (SEER) Program

**Figure 1.** Primary Liver Cancer: Age-Adjusted Incidence Rates and 5-Year Survival Rates, 1979–2004

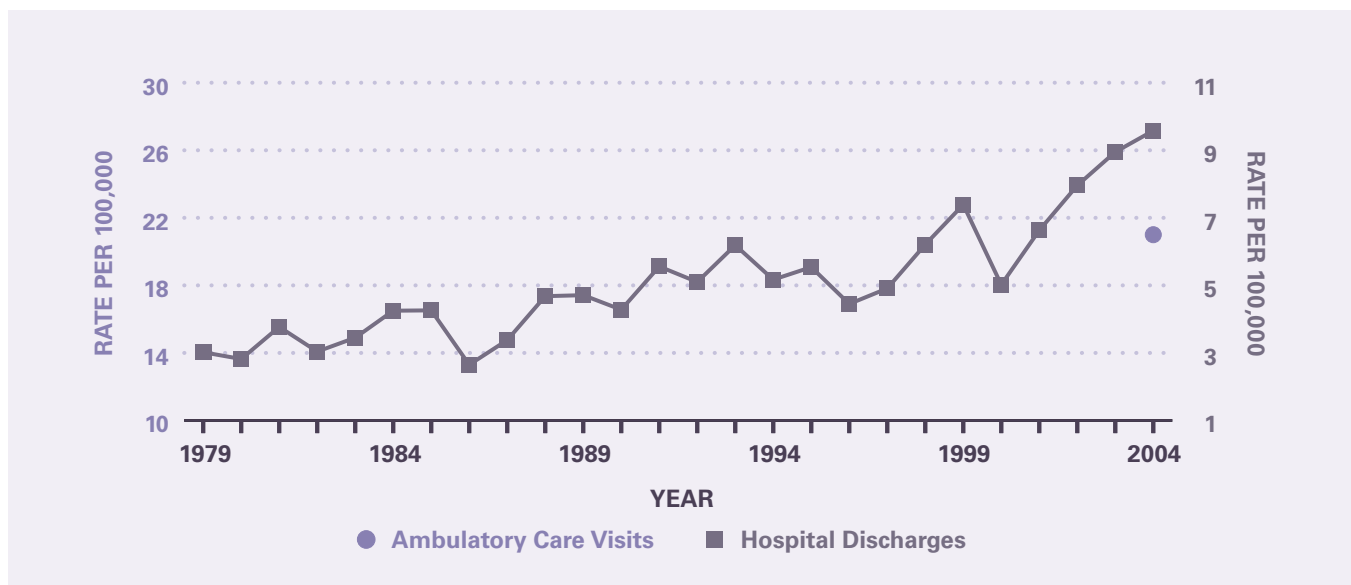


SOURCE: Surveillance, Epidemiology, and End Results (SEER) Program

**Table 2.** Primary Liver Cancer: Number and Age-Adjusted Rates of Ambulatory Care Visits and Hospital Discharges With First-Listed and All-Listed Diagnoses by Age, Race, and Sex in the United States, 2004

DEMOGRAPHIC CHARACTERISTICS	AMBULATORY CARE VISITS				HOSPITAL DISCHARGES				
	First-Listed Diagnosis		All-Listed Diagnoses		First-Listed Diagnosis		All-Listed Diagnoses		
	Number in Thousands	Rate per 100,000	Number in Thousands	Rate per 100,000	Number in Thousands	Rate per 100,000	Number in Thousands	Rate per 100,000	
<b>AGE (Years)</b>	Under 15	—	—	—	—	0	1	2	3
	15–44	—	—	—	—	1	1	2	2
	45–64	—	—	—	—	6	9	15	21
	65+	—	—	—	—	6	17	14	39
<b>RACE</b>	White	—	—	—	—	10	4	25	10
	Black	—	—	—	—	2	7	5	14
<b>SEX</b>	Female	—	—	—	—	4	3	9	6
	Male	—	—	—	—	10	7	23	17
<b>TOTAL</b>	—	—	63	21	14	5	33	11	

SOURCE: National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS) (3-year average, 2003–2005), and Healthcare Cost and Utilization Project Nationwide Inpatient Sample (HCUP NIS)

**Figure 2.** Primary Liver Cancer: Age-Adjusted Rates of Ambulatory Care Visits and Hospital Discharges With All-Listed Diagnoses in the United States, 1979–2004

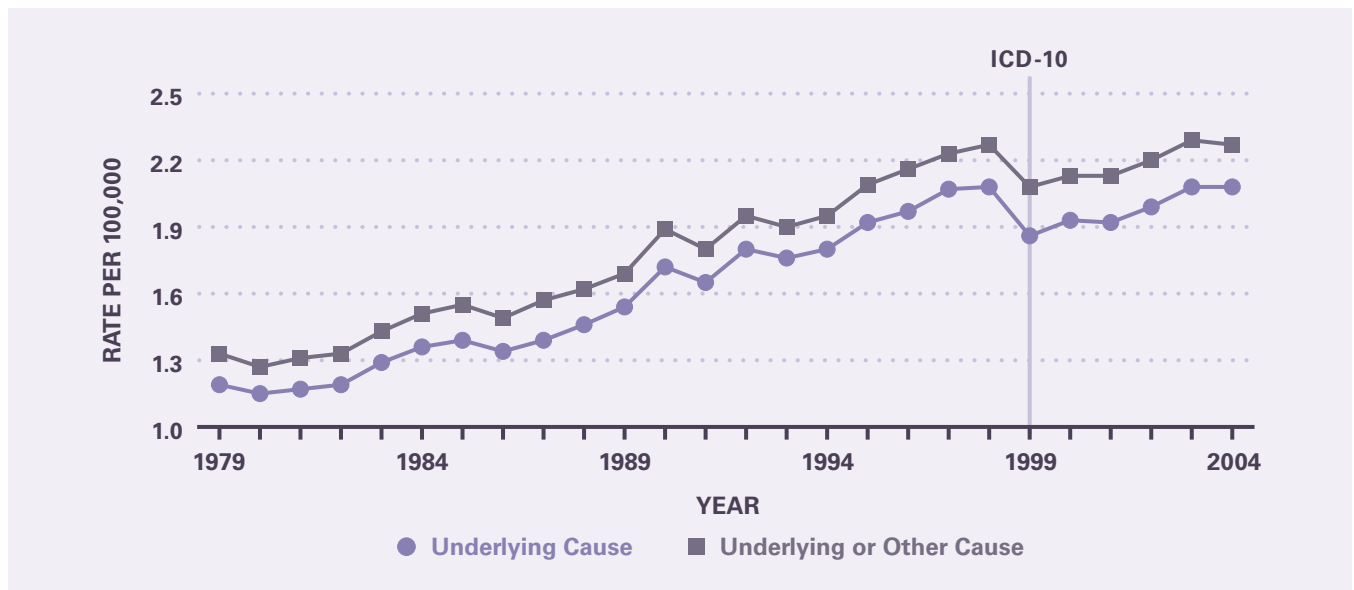
SOURCE: National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS) (averages 1992–1993, 1994–1996, 1997–1999, 2000–2002, 2003–2005), and National Hospital Discharge Survey (NHDS)

**Table 3.** Primary Liver Cancer: Number and Age-Adjusted Rates of Deaths and Years of Potential Life Lost (to Age 75) by Age, Race, and Sex in the United States, 2004

DEMOGRAPHIC CHARACTERISTICS	UNDERLYING CAUSE			UNDERLYING OR OTHER CAUSE		
	Number of Deaths	Rate per 100,000	Years of Potential Life Lost in Thousands	Number of Deaths	Rate per 100,000	
<b>AGE (Years)</b>	Under 15	33	0.1	2.3	34	0.1
	15–44	243	0.2	9.1	250	0.2
	45–64	2,781	3.9	53.9	3,069	4.3
	65+	3,266	9.0	7.2	3,567	9.8
<b>RACE</b>	White	4,742	1.8	49.8	5,204	2.0
	Black	944	3.1	14.7	1,021	3.4
<b>SEX</b>	Female	1,522	0.9	12.0	1,666	1.0
	Male	4,801	3.5	60.4	5,254	3.9
<b>TOTAL</b>		6,323	2.2	72.4	6,920	2.4

SOURCE: Vital Statistics of the United States

**Figure 3.** Primary Liver Cancer: Age-Adjusted Rates of Death in the United States, 1979–2004



SOURCE: Vital Statistics of the United States