

Trends in Hepatocellular Carcinoma Incidence Among Non-Hispanic White, Hispanic and American Indian Residents of New Mexico, 1981-2009

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Background

- Hepatocellular carcinoma is increasing rapidly in the United States (1).
- In New Mexico, it is a leading cause of cancer incidence and mortality, particularly among Hispanics and American Indians (2).
- Hepatocellular carcinoma is closely associated with chronic hepatitis B and C infection, and cirrhosis of the liver (3). Chronic hepatitis C infection accounts for about half of the recent increase in liver cancer (4).
- Over a period of about 20 years, approximately 10 to 20% of patients with chronic hepatitis C infection develop cirrhosis of the liver, and of those, 1 to 4% develop liver cancer per year (5).

Research Objective

This investigation was designed to characterize the time trends in incidence and mortality rates among New Mexico's three largest racial/ethnic groups: non-Hispanic whites, Hispanics and American Indians.

Data Sources and Methods

- Eligible subjects were identified from existing records in the population-based New Mexico Tumor Registry, a founding member of the National Cancer Institute's Surveillance, Epidemiology, and End Results Program.
- The study included incident cases of hepatocellular carcinoma (International Classification of Diseases for Oncology-Third Edition anatomic site code C20.0 and histology code 8170/3) diagnosed among New Mexico residents from 1981 to 2009.
- Deaths from cancer of the liver were included from the years 1990 to 2009 due to the availability of data on Hispanics during this time period.
- Age-adjusted incidence and mortality rates were calculated by the direct method using the United States 2000 standard population. Ninety-five percent confidence intervals for incidence rates were calculated using the Tiwari adjustment.
- Temporal trends in incidence rates were assessed with joinpoint regression techniques.

Results

Figure 1. Average annual age-adjusted incidence rate (per 1000,000) (US Standard) of hepatocellular carcinoma among New Mexico residents by county, 2005-2009

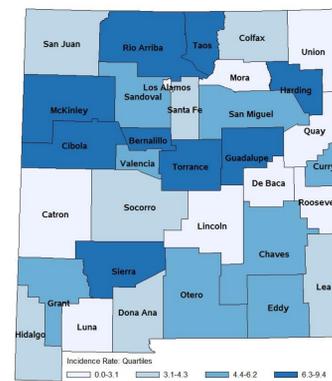


Figure 2. Average annual age-adjusted incidence of hepatocellular carcinoma among New Mexico residents, 1981-2009

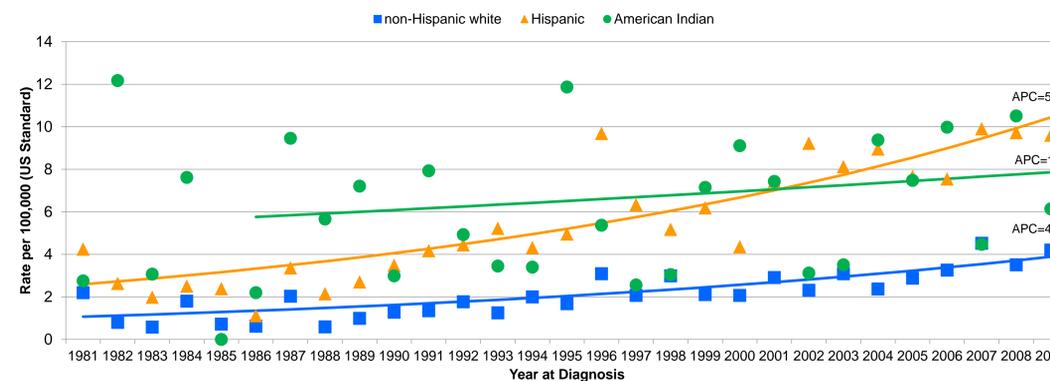
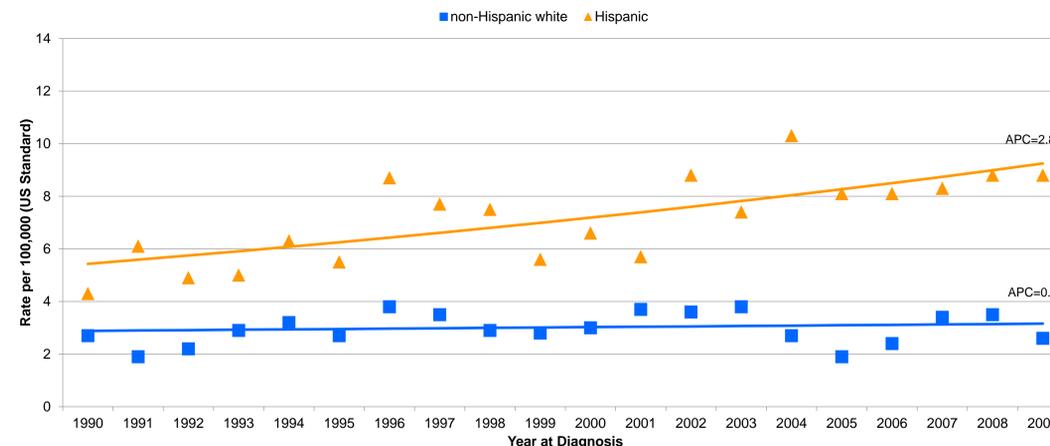


Figure 3. Average annual age-adjusted mortality of cancer of the liver among New Mexico residents, 1990-2009



Results

- The northern region of New Mexico has the highest incidence of hepatocellular carcinoma (Figure 1).
- The average annual age-adjusted incidence of hepatocellular carcinoma in New Mexico varies by race/ethnicity (American Indians=6.2, Hispanics=6.2, non-Hispanic whites=2.3 per 100,000) during the time period 2005 to 2009.
- Hepatocellular carcinoma incidence increased during the time period 1981 to 2009 in all 3 groups. The greatest annual percent change (APC) was observed among Hispanics (APC=5.1, p=0.00) and non-Hispanic whites (APC=4.7, p=0.00). Modest increases in hepatocellular carcinoma incidence rates among American Indians were not statistically significant (APC=1.4, p=0.32) (Figure 2).
- From 1990 to 2009, mortality rates for Hispanics increased (APC=2.8, p=0.00), but remained steady for non-Hispanic whites (APC=0.5, p=0.57). Mortality rates for American Indians were not shown due to a small number of cases (Figure 3).

Conclusions

- The prevalence of hepatitis C infection is greater in northern New Mexico compared to the rest of the state (6). The incidence of hepatocellular carcinoma is also higher in this region.
- Hepatocellular carcinoma rates remained high among American Indians during the study period, but their rate of increase was not as great as Hispanics and non-Hispanic whites.
- Hispanics are now poised to surpass American Indians with the highest hepatocellular carcinoma rates in New Mexico.
- Innovative and culturally-sensitive programs have been effective in reducing the burden of hepatitis in New Mexico. As an example, the Harm Reduction Act of New Mexico mandates that the Department of Health will establish and administer a harm reduction program for safer injection and health education among the state's intravenous drug users (7). The result of these programs should show a corresponding reduction in hepatocellular carcinoma incidence in the future.

References

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