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Chronic Liver Disease Mortality New Mexico, 1981-2004 (Part 2)

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The etiology of chronic liver disease (CLD) and recent trends in CLD death in New Mexico and the U.S. were described in Part 1 of this report[1]. As reported there, during the period 1981-2004 Hepatitis C (HCV) emerged as an important cause of chronic liver disease death, while excessive alcohol consumption remained the leading cause of CLD death in both New Mexico and the United States. Furthermore while total and alcohol-related CLD death rates declined significantly in the United States, New Mexico's total and alcohol-related CLD death rates increased significantly during this period.

Marked demographic disparities in CLD death rates are an important aspect of the epidemiology of CLD. As reported by the NIAAA[2], U.S. CLD death rates declined from their peak age-adjusted death rate of 18.1 per 100,000 in 1973 to a rate of 9.2 per 100,000 in 2005. This 49% decrease in the general population rate was exceeded by an even more dramatic decrease among Blacks (72% among Black males, 77% among Black females). As a result, Black rates that were twice White rates in 1973 are now less than White rates. The NIAAA doesn't report American Indian rates and has reported Hispanic rates only since 1991. The NCHS began reporting American Indian rates in 1980 and Hispanic rates in 1985. During the period 1985-2005, U.S. CLD rates as reported by NCHS decreased by 27% overall; but the American Indian rate decrease (19%) was considerably less than the declines for Blacks (60%), Asian/Pacific Islanders (39%), and Hispanics (32%). In 2005, the American Indian/Alaskan Native rate (22.6) remained the highest among U.S. racial/ethnic groups, at 1.6 times the Hispanic rate (13.9), 2.5 times the White rate (9.2), 2.9 times the Black rate (7.7), and 6.3 times the Asian/Pacific islander rate (3.6). CLD is no longer among the top ten leading causes of death for Whites or Blacks, but in 2005 it remained the 6th leading cause of death for both Hispanics and American Indians/Alaskan Natives[3]. Meanwhile, rate disparities by sex persisted throughout this period of declining rates, and male rates remained twice female rates in the total population (per NCHS), and among both Blacks and Whites (per NIAAA). This report will compare New Mexico and United States CLD rates and trends by age, sex, race/ethnicity, and race/ethnicity-sex category for the study period 1981-2004.

Methods

The definitions, data sources, and methods used in this report were described in Part 1. Calculation of rates and analysis of trends was possible for only part of the 24-year study period for some demographic categories. Hispanic origin was first reported by NCHS for the United States in 1985 and for New Mexico in 1989, so rate and trend analyses for the racial/ethnic categories Hispanic white and non-Hispanic white begin in those years. Prior to 1997, U.S. rates for these categories include only those states with at least 90% complete reporting of Hispanic origin; from 1997 on all states were judged to have sufficiently complete reporting of Hispanic origin.

Results

As reported in Part 1, New Mexico's CLD death rate increased by 30% between 1981-1983 and 2002-2004, while the United States CLD death rate decreased by 14%. In New Mexico, all age groups experienced significant rate increases except 55-64 year-olds, whose increase (8.9%) was non-significant. The largest rate increases occurred among 35-44 year-olds (43%) and adults aged 85 and over (82%). In the U.S., every 10-year age group under age 75 experienced rate decreases, with significant decreases among 35-44 year olds (12.3%), 55-64 year olds (24.7%), and 65-74 year olds (12.4%). In the U.S., small but significant rate increases were seen among 75-84 year olds (5.7%) and

adults aged 85 and older (18.1%).

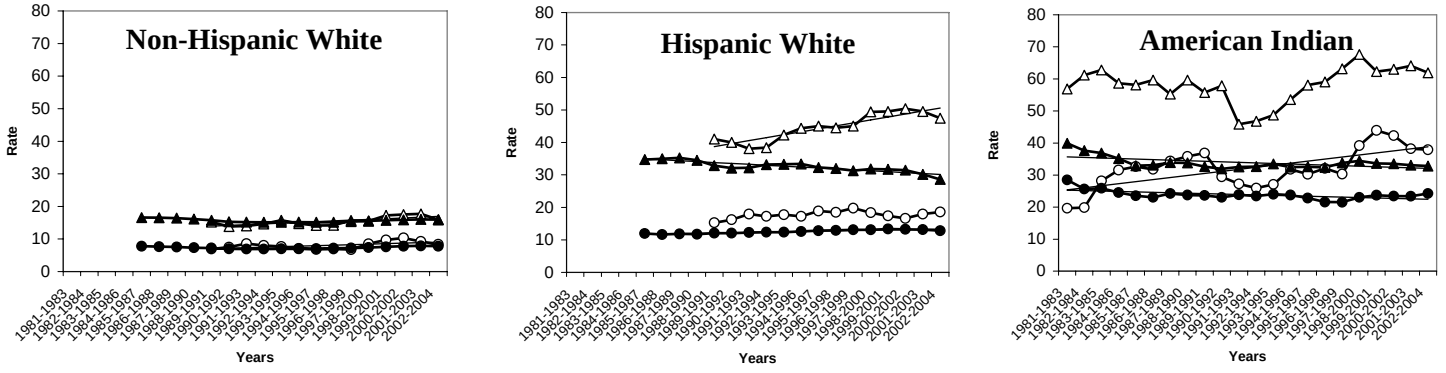
During the study period, New Mexico's CLD death rates increased significantly for both males (21.3%) and females (46.9%), whereas in the U.S. they decreased significantly for both males (16.3%) and females (12.4%). Throughout the study period male rates remained roughly twice female rates in both New Mexico and the United States.

Significant CLD death rate increases occurred in New Mexico for each of the three largest racial/ethnic groups. Between 1989 and 2004, non-Hispanic white rates increased 24.9% and Hispanic white rates increased 24.6%; between 1981 and 2004 American Indian rates increased 23.8%. CLD death rate disparities by race persisted in New Mexico during the study period: American Indian rates remained 3 to 4.5 times and Hispanic white rates remained 2.5 to 3 times non-Hispanic white rates during the period 1989-2004. For American Indians, three consecutive years of rate decline (1991-1993) were followed by rate increases that left rates significantly higher at the end of the study period than at the beginning. As shown in Figure 1, there were important differences in CLD trends within racial/ethnic groups: non-Hispanic white rates increased significantly for both males (28.1%) and females (21.4%); the Hispanic white rate increase was driven by a large and statistically significant increase in male rates (30.6%), and a smaller non-significant increase in female rates (10.5%); the American Indian increase was driven by a large and statistically significant increase in female rates (52.9%) and a smaller non-significant increase in male rates (7.8%).

As shown in Figure 2, in the 1990s HCV emerged as a cause of CLD death in each racial/ethnic group, but rates increased significantly more among Hispanic and non-Hispanic whites than among American Indians: between 1996 and 2004 the proportion of total CLD deaths caused by HCV was 12-16% for Hispanic and non-Hispanic whites and only 1-2% for American Indians. The rate of alcohol-related CLD death also increased significantly during the study period among all racial/ethnic groups, although significant increases by race-sex category were seen only among non-Hispanic white males (11.8%) and American Indian females (40%). Alcohol remained the predominant cause of CLD death among New Mexico's three largest racial/ethnic groups, accounting for 55% of CLD deaths among non-Hispanic whites, 59% among Hispanic whites, and 73% among American Indians by the end of the study period. There was a small but non-significant overall increase in the other non-alcohol-related CLD death rate in New Mexico (2.7%); but large significant increases among Hispanic white males (38.4%) and American Indian females (68.7%). The overall Hispanic white male rate increase was due to this increase in other non-alcohol-related CLD as well as the group's HCV death rate, which was the highest among all race-sex groups. The American Indian female rate increase was driven by significant increases in both alcohol- and other non-alcohol-related CLD rates.

In contrast, during the study period in the U.S., CLD rates decreased significantly among both Hispanic whites (5.1%) and American Indians/Alaskan Natives (10.3%) and remained unchanged among non-Hispanic whites. Rate disparities by race persisted in the U.S as in New Mexico, although the disparities were smaller in the U.S., where American Indian/Alaskan Native rates remained around 2.5 times and Hispanic white rates remained 2 times non-Hispanic white rates during

Figure 1. Chronic Liver Disease Death Rates, By Race and Sex, New Mexico and United States, 1981-2004*



* All rates are rolling three-year averages per 100,000 population, age-adjusted to the 2000 US standard population; straight lines based on linear models are included for statistically significant trends.

the period 1985-2004. As in New Mexico, there were important differences in U.S. CLD trends within racial/ethnic groups (Figure 1): the overall decline in Hispanic white rates was driven by a decrease in male rates (10.9%) that masked a significant increase in female rates (10.6%); whereas the American Indian decrease was the result of significant decreases in both male (10.9%) and female rates (11.1%). HCV emerged as a significant cause of CLD in each U.S. race-sex group, but these increases were offset by significant decreases in both alcohol-related CLD and non-alcohol-related CLD in each race-sex group.

Discussion

The increase in New Mexico's total CLD death rate during the period 1981-2004 was driven by significant rate increases for most age groups, both sexes, and the three largest racial/ethnic groups. This is in contrast to the U.S., which experienced significant rate decreases across most of these demographic categories. In New Mexico, Hispanic white males and American Indian females experienced the largest CLD rate increases; American Indian male rates also increased and remained the highest among any race-sex group throughout this period. The divergence in U.S. and New Mexico CLD rates during this period was the result of the significant increase in alcohol-related CLD death among the three largest race groups in New Mexico compared to significant declines in both alcohol- and non-alcohol-related CLD death rates among all U.S. race-sex groups.

Inaccuracies or biases in the reporting of cause of death on the death certificate (e.g., the under-ascertainment and underreporting of HCV; the over- or under-attribution of alcohol as a cause) particularly if systematic by race/ethnicity, could have influenced these results. The use of national alcohol attributable fractions most likely under-estimated the number of "unspecified" liver cirrhosis deaths that are alcohol-related in New Mexico.

Per capita alcohol consumption decreased significantly in both New Mexico and the U.S. during the study period[4]. It is possible that per capita alcohol consumption in New Mexico increased in key subgroups (e.g., among chronic heavy drinkers; among American Indian females) while declining overall; or that the prevalence of HCV, an important modifier of alcohol's effects on the liver, increased and is an under-ascertained contributing factor in deaths attributed here to alcohol. Unfortunately, reliable HCV incidence data, particularly by race/ethnicity, is unavailable for the study period. The significant increase in non-alcohol-related CLD among Hispanic males and American Indian females was largely due to an increase in "unspecified" liver cirrhosis. Given trends in specified CLD, this increase likely reflects an increase in under-attributed alcohol involvement among American Indian females. Among Hispanic males it seems possible that under-ascertained HCV resulting from injection drug use (IDU, a factor in this group's high reported rates of drug overdose death[5]) may be contributing to the non-alcohol-related CLD death trends in this group.

Recommendations

1. Implement annual reporting of CLD death rates in New Mexico to focus awareness and prevention efforts on this serious public health problem.
2. Expand the focus of alcohol-related prevention efforts in New Mexico to include strategies that specifically target excessive alcohol consumption and alcohol-related CLD.
3. In particular, promote strategies that have been found effective in reducing alcohol consumption among chronic/heavy drinkers; and strategies such as screening and brief intervention with at-risk drinkers, that have been found effective in reducing the progression of at-risk drinkers toward chronic/heavy drinking, alcohol dependence, and alcohol-related chronic diseases.
4. Pursue these recommendations with a special focus on the primary and secondary prevention of alcohol-related CLD in the American Indian male and female population.
5. Further characterize the association between alcohol, IDU, HCV, and CLD in the New Mexico Hispanic white male population.

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The New Mexico Epidemiology Report

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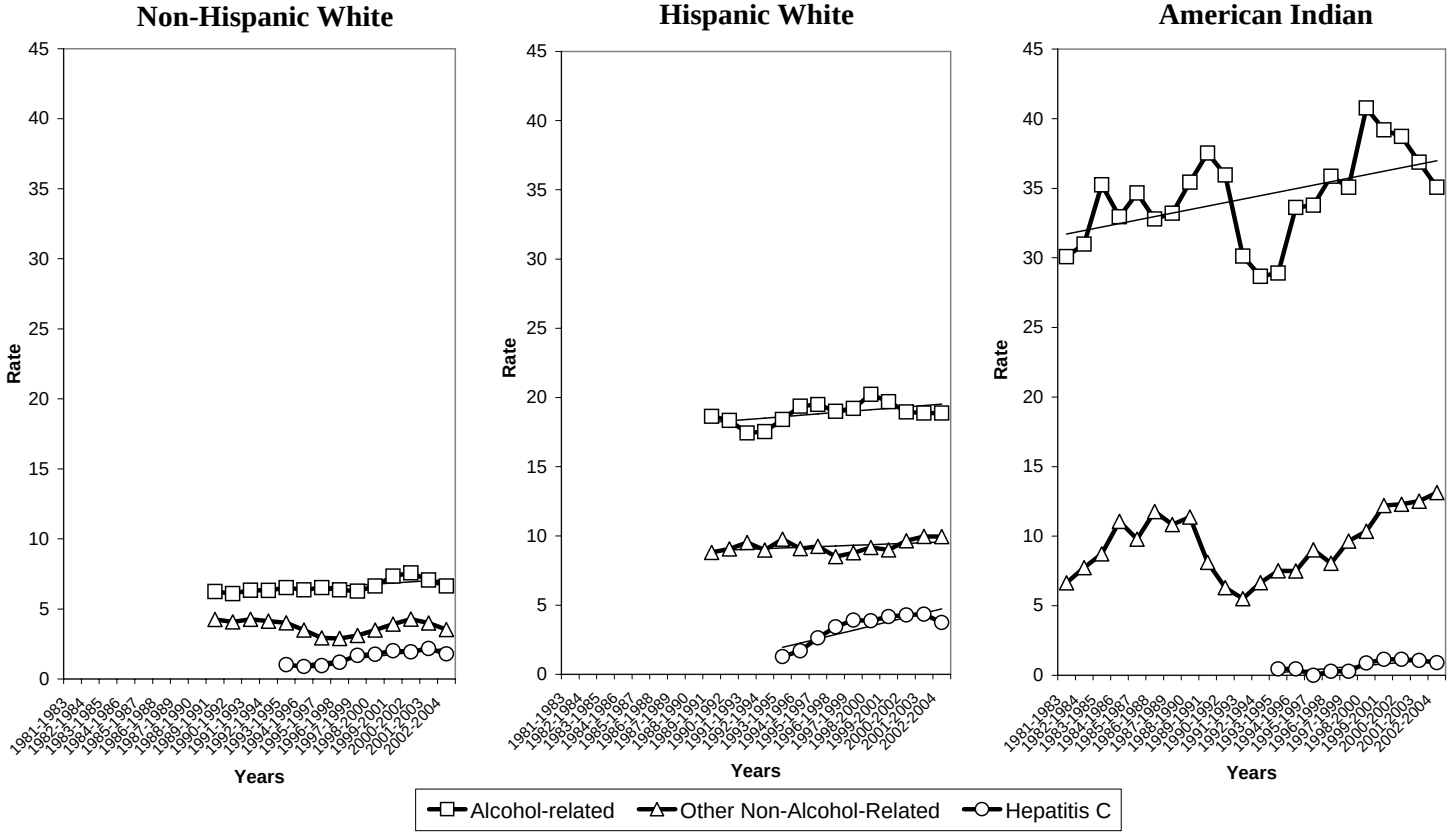
Figure 2. Chronic Liver Disease Death Rates by Race and Cause, New Mexico, 1981-2004*



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