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DEMOGRAPHIC AND REGIONAL MORTALITY IN GASTROINTESTINAL BLEEDING WITH COEXISTING CIRRHOSIS IN THE UNITED STATES, 1999-2020: A CDC WONDER ANALYSIS

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PURPOSE / OBJECTIVES

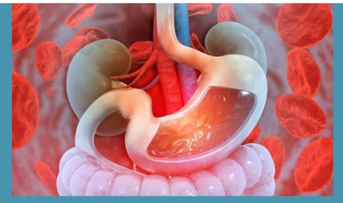
Liver cirrhosis is the 11th most common cause of mortality worldwide, accounting for around 1 million deaths annually. Gastrointestinal (GI) bleeding due to portal hypertension is a major cause of death in patients with liver cirrhosis. Considering the lack of comprehensive literature, this study aims to analyze the mortality rates of liver cirrhosis-associated GI bleeding and its trends in the United States.

MATERIAL & METHODS

The CDC WONDER database was used to extract crude and age adjusted mortality rates (AAMRs) per 1000,000 individuals. Data was stratified into different demographic (gender, age, and race/ethnicity) and geographic (state, urban-rural, and regional) subgroups. Joinpoint regression software was used to analyze the data and calculate annual percentage changes (APCs) and average annual percentage changes (AAPCs) in the AAMRs with 95% CI.

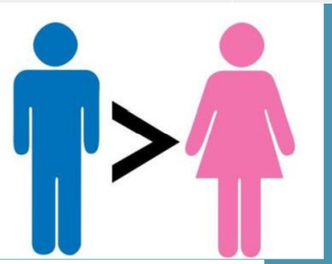
RESULTS

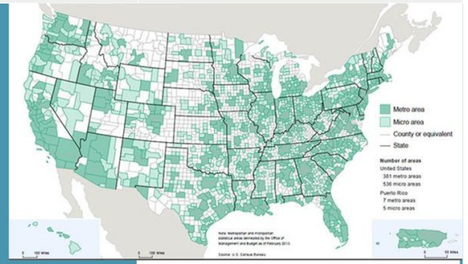
Between 1999 and 2020, 108,081 documented deaths were attributed to liver cirrhosis-associated GI bleeding. The overall AAMR increased from 25.3 in 1999 to 30.7 in 2020 (AAPC: 0.52, p = 0.05). There was a significant decrease in mortality from 1999 to 2006 (APC: -4.39; 95% CI: -6.81 to -2.89) (p= 0.006), which was followed by a gradual increase from 2006 to 2018 (APC: 1.89; 95% CI 0.25 to 2.60) (p=0.039). From 2018 to 2020, a significant increase in mortality was documented with an associated APC of 10.57 (95% CI: 3.29 to 13.83) (p< 0.000001). The overall AAMR for males (33.9) was three times more than for females (12.5), with AAPC 0.21 (p=0.225) and 1.33 (< 0.000001), respectively. The crude mortality rate increased with age from 25 years to 64 years, after which it decreased with age (25-34 years: 2.4; 55-64 years: 43.8; 85+ years 20.9). The AAMR was highest in the American Indian or Alaskan Natives (85.1), eightfold greater than the lowest in Asian or Pacific Islanders (11.3), highlighting significant racial disparities. Western (30.7) and southern (22.3) regions displayed higher AAMRs than Midwestern (18.8) and northeastern (18.7) regions. Metropolitan and non-metropolitan areas showed comparable overall AAMRs (22.7 vs. 23.3), but a significant increase in overall mortality was reported for non-metropolitan areas (AAPC: 2.3112, p< 0.000001). States in the upper 90th percentile included South Dakota, Texas, California, the District of Columbia, and New Mexico, with 76% of deaths taking place in a medical facility, 15.9% at the decedent's home, and 8.1% at other locations.



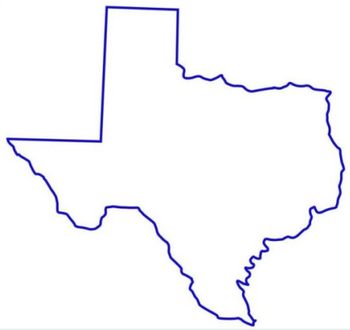
Mortality in gastrointestinal bleeding with cirrhosis

1999 to 2006	Significant decrease	APC -4.39
2006 to 2018	Gradual increase	APC 1.89
2018 to 2020	Significant increase	APC 10.57

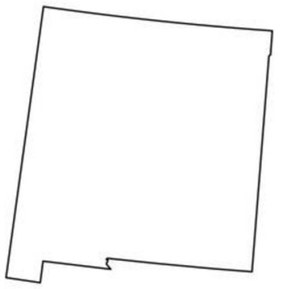




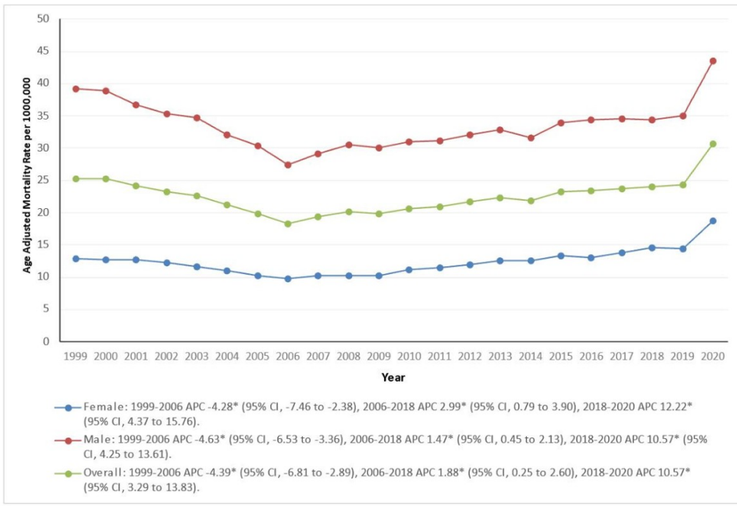
Gender variations Metropolitan and non-metropolitan areas

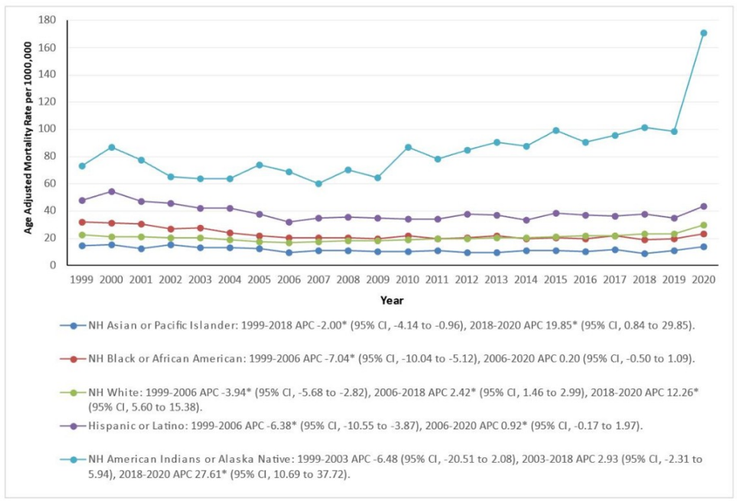


90th percentile states



RESULTS





SUMMARY / CONCLUSION

Mortality from liver cirrhosis-associated GI bleeding has increased over the past two decades, with a significant increase documented from 2018 to 2020. Significant discrepancies across gender, age, race, and geographical areas were highlighted, necessitating additional exploration and legislative measures with targeted intervention for high-risk individuals to reduce mortality.