Trends in Leukemia and Cardiac Arrest-Related Mortality in the U.S. (1999–2020)

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Introduction

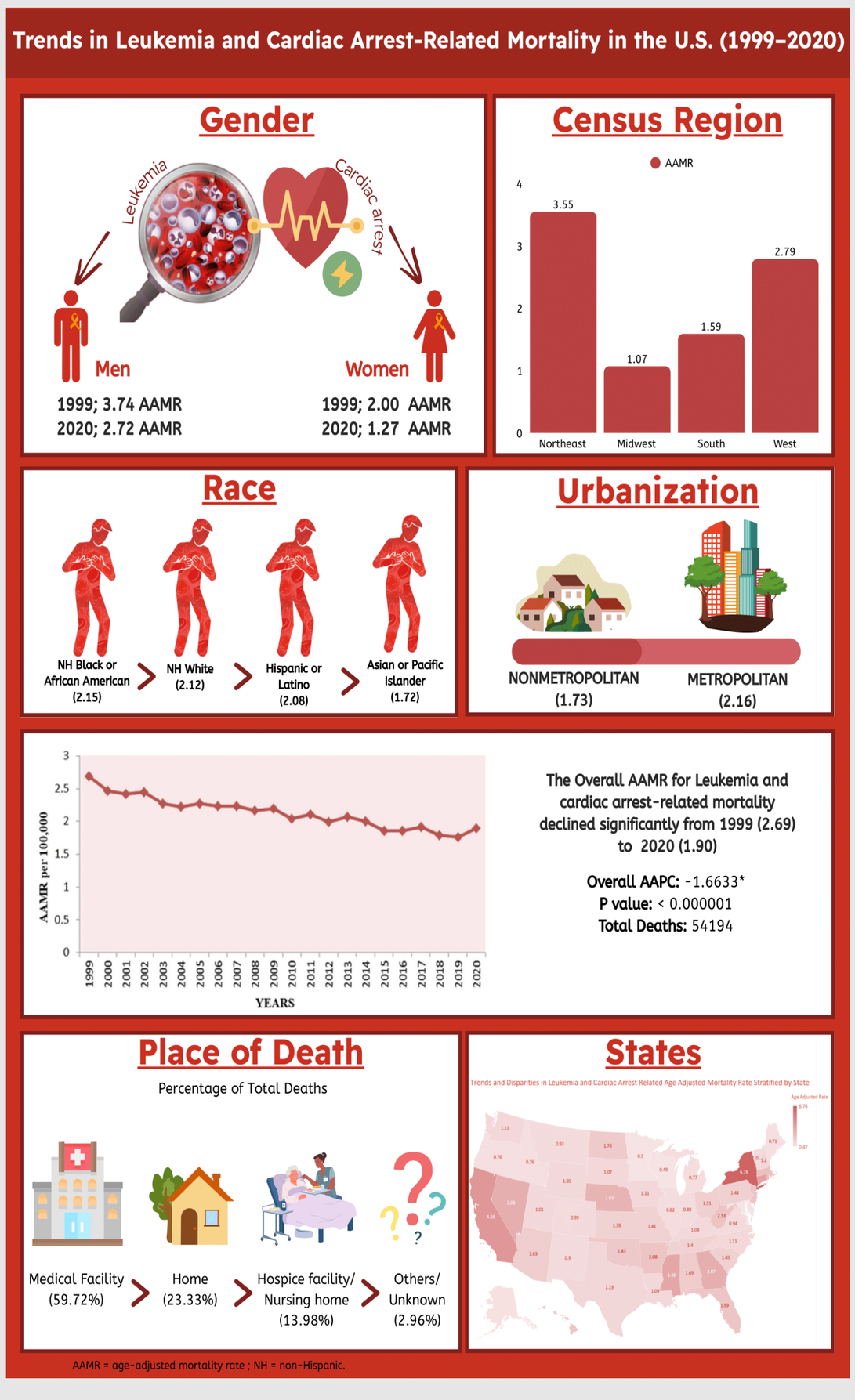
- Leukemoid infiltration of the myocardium can lead to conduction abnormalities, increasing the risk of cardiac arrest in leukemia patients. Although rare, this complication has contributed to significant mortality rates in the U.S.
- Research on these mortality trends remains limited, making it crucial to investigate the connection between leukemia and cardiac arrest further.
- A deeper understanding of these patterns could help shape public health strategies aimed at improving patient outcomes.

Objectives

- Examine Leukemia and Cardiac Arrest mortality trends in U.S. population aged 45 years and older.
- Stratify findings by demographic, geographic and urbanization factors.

Methods

- **Study Design:** Retrospective study.
- **Data Source:** Centers for Disease Control and Prevention Wide-Ranging Online Data for Epidemiologic Research (CDC WONDER)
- **ICD-10 Codes:** Leukemia **(C91-C95)**, Cardiac Arrest **(I46)**
- **Mortality measures:**
- Age-adjusted mortality trends (AAMRs) per 100,000 individuals.
- Annual percentage changes (APC) with 95% confidence intervals.
- **Statistical Analysis:** Jointpoint analysis to evaluate trends across racial/ ethinic groups, ten year age groups and geographical regions.



Results

- **Total Deaths:** A total of 54,194 deaths were reported among patients who died due to leukemia and sudden cardiac arrest between 1999 and 2020.
- **Overall AAMR Trends (1999-2020):** The age-adjusted mortality rate (AAMR) declined from 2.69 to 1.90 per 100,000 population for Leukemia and Cardiac Arrest-related deaths.
- **Gender Variations:** Men consistently exhibited higher AAMRs than women throughout the study period.
- **Racial Differences:** Among racial and ethnic groups, African Americans had the highest AAMRs, followed by White individuals, while Hispanics and Latinos had the lowest AAMRS.
- **Ten Year Age groups Variationss:** The majority of deaths occurred in patients aged 75 to 84 years.
- **Area Type Differences:** Metropolitan areas had significantly higher deaths as compared to Non metropolitan areas.
- **Place of Death Variations:** 54.8% deaths occurred in inpatient medical facilities, which also had the highest associated mortality rate.
- **States Variations:** New York reported the highest AAMR at 6.76, whereas Maryland had the lowest at 0.47.

Table 1. Summary of Key Findings

Category	1999 AAMR	2020 AAMR	AAPC
Gender			
Men	3.74	2.72	-1.55
Women	2	1.27	-2.1
Race Ethnicity			
NH Black	2.71	1.95	-2.33
NH White	2.68	1.94	-1.53
Hispanics	2.61	1.87	-1.95
NH Asian	2.31	1.33	-2.31
Region			
Northeast	4.7	2.87	-2.41
Midwest	1.35	1.11	-0.97
South	1.97	1.32	-2.02
West	3.4	2.78	-0.76

Conclusion

- Our study reveals a concerning consistency in mortality rates from cardiac arrest among patients with leukemia.
- Despite notable advancements in medical care, these rates have not significantly improved.
- To enhance patient outcomes, it is essential to implement early intervention strategies.
- Additionally, we must prioritize targeted public health initiatives that address these critical healthcare disparities in order to effect meaningful change in survival rates.

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