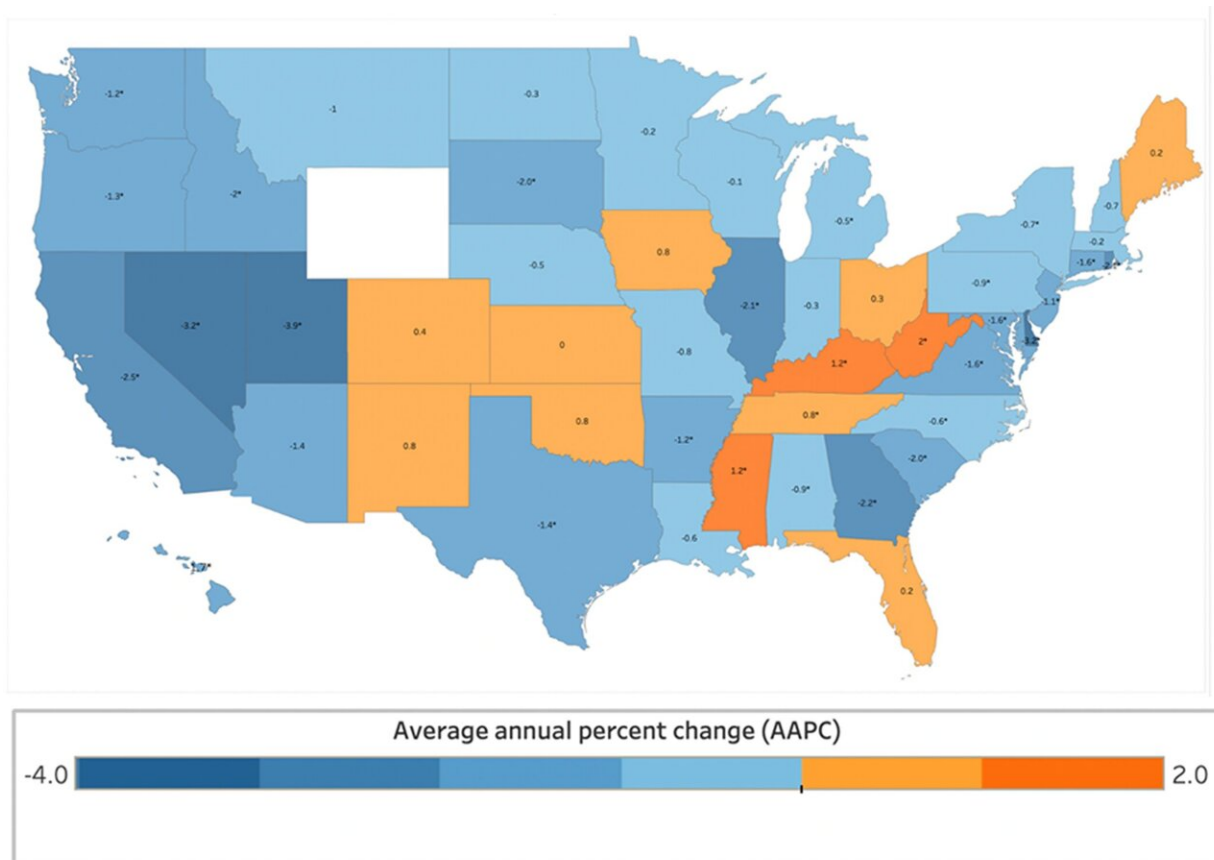


Research finds deaths from heart valve infections drop across U.S. overall, but surged among young adults

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Trends in crude mortality by age group from 1999 to 2020. Credit: *Journal of the American Heart Association* (2023). DOI: 10.1161/JAHA.123.031589

Death rates related to infective endocarditis declined in most adults across the U.S. within the last two decades, yet accelerated among young adults ages 25 to 44 years old, according to new research published in the *Journal of the American Heart Association*.

Infective endocarditis, also called bacterial endocarditis, is an infection caused by bacteria that enter the bloodstream and settle in the heart lining, a heart valve or a blood vessel. The disease is rare, however, people with previous valve surgeries, heart valve abnormalities, artificial valves, congenital heart defects or previous infective endocarditis have a greater risk of developing it. It can also be a complication of injecting [illicit drugs](#).

"Our study findings raise a public health concern, especially since the deaths in younger age groups are on the rise," said study lead author Sudarshan Balla, M.D., an associate professor of medicine at the West Virginia University Heart and Vascular Institute at J.W. Ruby Memorial Hospital in Morgantown, West Virginia.

"We speculate that this acceleration was likely, in the most part, due to the opioid crisis that has engulfed several states and involved principally younger adults."

Researchers examined [death](#) certificate data from the Centers for Disease Control and Prevention's (CDC) Multiple Cause of Death dataset, which contains [death rates](#) and population counts for all U.S. counties. They looked for national trends in deaths caused by infective endocarditis, plus differences in deaths related to age, sex, race and geography among states from 1999–2020.

Researchers also analyzed the association with [substance use disorder](#), considering the emergence of the opioid epidemic during the study's time frame.

The analysis found:

- In the 21-year period analyzed, infective endocarditis death rates declined overall in the U.S.
- Death rates increased significantly for young adults, at an average annual change of more than 5% for the 25-34 age group and more than 2% for the 35–44 age group.
- In the 45–54 age category, death rates remained stagnant at 0.5%, and there was a significant decline among those aged 55 and older.
- Substance use disorder associated with multiple causes of death increased drastically—between 2-fold and 7-fold among the 25–44 age group.
- Kentucky, Tennessee and West Virginia showed an acceleration in deaths caused by infective endocarditis in contrast to other states with either a predominant decline or no change.

"We found that [substance use](#) was listed as a contributing cause that could explain the higher death rates in the younger age groups and also in the states in those who died due to endocarditis," Balla said.

The study researchers call the rise of infective endocarditis as the underlying cause of death in adults 25–44 years old "alarming" and recommend more investigation to identify the reasons for these trends among [young adults](#) and in the three states noted. Researchers speculate the increase is connected to the opioid crisis that has engulfed several states and involves primarily younger adults.

"Comprehensive care plans for those treated for infective endocarditis should also include screening and treatment for substance use disorder," Balla said.

To address intravenous drug use, some states have started harm

reduction programs, which are public health efforts to reduce the harm from substance use and drug abuse, such as increased risk of infectious diseases like HIV, viral hepatitis, and bacterial and fungal infections.

"Whether these programs make an impact is yet to be determined," Balla said.

Researchers were limited in the medical details they could collect because of the use of death certificate data, which may contain inaccuracies, such as errors in diagnosis, data entry and cause of death. For similar reasons, researchers could not determine a direct cause-and-effect relationship between the rise in deaths caused by infective endocarditis in younger adults and substance use disorder.

Study details and design:

- The study used the CDC's Wide-Ranging Online Data for Epidemiologic Research (WONDER) database to analyze death certificates and multiple causes of death. Infective endocarditis and substance use disorder were identified according to criteria from the International Classification of Diseases, Tenth Revision.
- The age-adjusted death rate related to infective endocarditis was 26 per million persons in 1999 and 22 per million persons in 2020, representing a significant decline in the death rates related to [infective endocarditis](#), with an average annual percent change of -0.8.

More information: Sudarshan Balla et al, Trends in Infective Endocarditis Mortality in the United States: 1999 to 2020: A Cause for Alarm, *Journal of the American Heart Association* (2023). [DOI: 10.1161/JAHA.123.031589](https://doi.org/10.1161/JAHA.123.031589)

Provided by American Heart Association

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