

# Endocarditis in patients with cocaine or opioid use disorder increased markedly from 2011 to 2022

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The incidence rate of infective endocarditis—a rare but often fatal inflammation of the heart valves—among patients with cocaine use disorder or opioid use disorder increased from 2011 to 2022, with the steepest increase occurring from 2021 to 2022, a new study reports. Study findings contribute to expanding evidence of endocarditis as a significant and growing health concern for people who inject drugs, and

further demonstrate that this risk has been exacerbated during the COVID-19 pandemic.

Among patients with either [substance use disorder](#), those who were clinically diagnosed with COVID-19 faced a higher risk of a new endocarditis diagnosis as well as hospitalization following this diagnosis than those without COVID-19. Over the full 12-year period, the rate of endocarditis was three to eight times greater in patients with opioid and cocaine use disorder than those without.

The findings also showed that Black and Hispanic people faced a lower risk of COVID-19-associated endocarditis than non-Hispanic white people. The authors note this is consistent with higher prevalence of injection [drug](#) use in non-Hispanic white populations, compared to black or Hispanic populations. The study published today in *Molecular Psychiatry*.

"People with substance use disorder already face major impediments to proper health care due to lack of access and stigma," said NIDA Director and co-corresponding study author, Nora D. Volkow, M.D. "Proven techniques like syringe service programs, which help people avoid infection from reused or shared injection equipment, can help prevent this often fatal and costly condition."

One in 10 hospitalizations for endocarditis is associated with injection drug use, and these numbers continue to rise. Many drugs can be taken via injection, including cocaine, methamphetamine, and opioids such as heroin and fentanyl. Inadequate access to sterile injection equipment is common and dramatically increases risk of infection in people who use drugs. HIV and hepatitis can also be transmitted through re-use of [injection](#) equipment and pose health risks.

Dr. Volkow at NIDA and a team of scientists at Case Western Reserve

University in Cleveland, Ohio, analyzed electronic health record data of more than 109 million unique patients collected from January 2011 through August 2022. Patient data were derived from 77 hospitals nationwide across the entire United States, covering diverse geographic locations, age groups, racial and ethnic groups, income levels and insurance types. The electronic health records were de-identified to ensure privacy.

The researchers found that in 2011, there were four cases of endocarditis per day for every 1 million people with [opioid use disorder](#). In 2022, this rate increased to 30 cases per day per 1 million people with opioid use disorder. For people with cocaine use disorder, cases increased from five per 1 million people with cocaine use disorder in 2011 to 23 cases in 2022.

A clinical diagnosis of COVID-19 more than doubled the risk for new diagnosis of endocarditis in patients with either cocaine or opioid use disorder. Among these patients, the risk of hospitalization within 180 days following diagnosis of endocarditis was about 68% in patients with COVID-19, compared to 59% in those without. Moreover, the mortality risk within 180 days following new diagnosis of endocarditis was 9% in those with COVID-19, compared to 8% in patients without.

"As the scientific understanding of long COVID develops, we can now include [endocarditis](#) as one long-term effect on key organ systems for people who inject drugs. Our study is one of the first to show this," said Rong Xu, Ph.D., professor of biomedical informatics at Case Western Reserve and co-corresponding author of this study. "It's critical that we continue to monitor long-term, broad impacts of COVID-19 on people who use drugs."

**More information:** Association of COVID-19 with endocarditis in patients with cocaine or opioid use disorders in the US, *Molecular*

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