



**The Society of Thoracic Surgeons**  
633 N. St. Clair, Suite 2100  
Chicago, IL 60611  
[www.sts.org](http://www.sts.org)

# News

**Media Contact:**  
Jennifer Bagley  
312-202-5865  
[jbagley@sts.org](mailto:jbagley@sts.org)

## **Substance Use Disorder Significantly Increases Risk of Death from Heart Infection**

### ***Proactively treating substance use disorder may help improve outcomes after valve surgery for infective endocarditis***

CHICAGO (October 17, 2019) — Patients who suffer from infective endocarditis (IE) and struggle with substance use disorder (SUD) have a 240% increased risk of dying within 6 months to 5 years after valve surgery compared to other IE patients, according to a study published online today in *The Annals of Thoracic Surgery*.

“Fueled by the burgeoning opioid epidemic, valve surgeries for SUD-related infective endocarditis are increasing,” said Alysse Wurcel, MD, an infectious disease physician from Tufts Medical Center in Boston. “This study helps us better understand the timing of the vulnerable, distinct period of increased disparities in mortality so that we can proactively investigate ways to improve outcomes.”

Dr. Wurcel and colleagues queried The Society of Thoracic Surgeons Adult Cardiac Surgery Database for data related to patients who underwent heart surgery between January 2002 and December 2016 after an IE diagnosis. The researchers also reviewed notes and toxicology screens included in the institutional medical records, identifying those with illicit drug use. Of the 228 patients who had surgery for IE during that timeframe, 80 patients (35%) had SUD-IE and also were significantly younger than the non-SUD-IE patients (38 years old vs. 60 years old).

IE is a life-threatening bacterial infection in the endocardium, which is the inner lining of the heart chambers and valves. While this condition is often associated with heart defects or abnormal valves, it also is a notorious complication after using unsanitary needles and syringes to inject drugs, as bacteria from the skin’s surface and injection equipment release directly into the bloodstream. Despite medical advances, SUD-IE remains difficult to treat and has a high recurrence rate.

“Substance use disorder adds another layer to the complexity of managing postoperative valvular heart disease,” Dr. Wurcel said.

According to the Centers for Disease Control and Prevention, people with SUD-IE are 10 times more likely than other patients with IE to require a second surgery or die months after leaving the hospital. This research concurred,

#### **KEY POINTS**

- The intravenous drug epidemic may be contributing to a significant rise in people diagnosed with IE.
- Patients with SUD-IE who have heart valve surgery experience complications or death, most often within 6 months to 5 years after the operation.
- Addressing SUD while in the hospital reduces the risk of patients leaving against medical advice, recurrent drug use, readmission rates, and death.

showing that repeat valve replacement for IE was more likely to happen in people with SUD than in those without (14% vs. 3%). The researchers also found that 86 of the 228 patients died (38%), with a higher percentage of deaths in the SUD-IE group than in the non-SUD-IE group (48% vs. 32%). Recurrent IE, overdose, and liver failure were among the likely causes of death, which—for 41% of the patients with SUD-IE—occurred between 6 months to 5 years after surgery.

Dr. Wurcel explained that in this “midterm” period, patients with SUD-IE often find themselves with unstable housing conditions, limited access to transportation, and other challenges that prevent them from utilizing addiction-related services.

### **Combining Addiction Treatment with Post-Surgical Care**

Because patients with SUD-IE tend to leave the hospital before completing the recommended weeks-long series of antibiotics treatment or fail to follow self-care instructions provided upon discharge, Dr. Wurcel recommended that traditional cardiac units offer addiction treatment so that patients can remain in recovery once they leave the hospital.

“We should focus more resources—both clinical and research—into understanding what people need to stay healthy,” said Dr. Wurcel. “We need to shift the paradigm of how we think about addiction. It is an illness with environmental and genetic triggers.”

Without a comprehensive approach to treating addiction, Dr. Wurcel said that outcomes for patients with SUD-IE likely will not improve. As a result, Tufts University created a multidisciplinary team approach to address IE and the contributing substance abuse. Surgeons, infectious disease clinicians, addiction specialists, case workers, and nurses work closely together and meet every 2 months to discuss patients with SUD-IE who are currently in the hospital or recently have been discharged.

“The opioid epidemic is a multiheaded monster that can be fatal in many ways,” said Thomas E. MacGillivray, MD, of Houston Methodist in Texas, who was not directly involved with this research. “Substance abuse has long been known to be causative of endocarditis requiring high-risk valve repair or replacement surgery. This study highlights the continued increased risk of death in substance abuse patients even after the valve disease is addressed. More emphasis should be placed on managing the primary disease of substance abuse during the initial hospitalization in order for the secondary problem of endocarditis to have a lasting impact on survival.”

Dr. Wurcel agreed that reinfection may be prevented if patients are offered medication for substance use disorder (e.g., buprenorphine or methadone) and the importance of early and continued addiction management is emphasized.

“The health care team plays a crucial role in reversing the tide of substance abuse and addiction,” Dr. Wurcel said. “We are the people to whom patients turn in their times of need. Many with substance use disorder avoid medical interactions because of negative experiences. We need to focus on the patients every step of the way and change that.”

###

Wurcel AG, Boll G, Burke D, Khetarpal R, Warner PJ, Tang A, and Warner KG. Impact of Substance Use Disorder on Midterm Mortality after Valve Surgery for Endocarditis. DOI: 10.1016/ j.athoracsur.2019.09.004.

Find comprehensive medical information presented for patients by leading experts in cardiothoracic surgery on the STS Patient Website ([ctsurgerypatients.org](http://ctsurgerypatients.org)). For a copy of *The Annals* article, contact Jennifer Bagley at 312-202-5865 or [jbagley@sts.org](mailto:jbagley@sts.org).

Founded in 1964, The Society of Thoracic Surgeons is a not-for-profit organization representing 7,300 cardiothoracic surgeons, researchers, and allied health care professionals worldwide who are dedicated to ensuring the best possible outcomes for surgeries of the heart, lung, and esophagus, as well as other surgical procedures within the chest. The Society's mission is to enhance the ability of cardiothoracic surgeons to provide the highest quality patient care through education, research, and advocacy.

*The Annals of Thoracic Surgery* is the official journal of STS and the Southern Thoracic Surgical Association. It has an impact factor of 3.919.