

Are heart surgery patients losing too much blood to tests?

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Experts recommend limiting frequency of tests, using conservation measures.

(HealthDay)—Heart surgery patients often undergo dozens of blood tests while they're hospitalized, potentially losing half a liter of blood or more over time, a new study reports.

Patients may not realize they're losing so much blood because the blood tests are typically taken through an IV. But the study authors, who were "astonished by the extent of bloodletting," wrote that the loss of blood could lead to longer stays in the hospital. Blood loss can also lead to transfusions and anemia, requiring more treatment and higher costs, the researchers suggested.

"All these little blood tests we do add up to a lot of blood," said Dr. Milo Engoren, a professor of anesthesiology at University of Michigan Health System. The good news, he said, is that solutions exist, and hospitals can take action to protect patients.

Findings from the study appear in the March issue of *The Annals of Thoracic Surgery*. Engoren wrote an accompanying editorial in the same issue of the journal.

Anyone who's been in a hospital knows about the extensive use of blood tests, which allow physicians and nurses to monitor various bodily functions, said Dr. Adam Salisbury, an interventional cardiologist at Saint Luke's Mid-America Heart and Vascular Institute in Kansas City.

In heart patients, blood tests can help determine whether medications are working. The tests also allow physicians to monitor gases in the blood—such as oxygen and carbon dioxide—during surgery when patients breathe through a ventilator, explained Salisbury, who was not involved with the new study.

But how many blood tests are too many? Dr. Colleen Koch and colleagues at the Cleveland Clinic sought to find out by tracking cardiac surgery patients for six months in 2012. They tracked almost 1,900 patients who were hospitalized once and 27 patients who were hospitalized twice.

The researchers found that the patients underwent an average of 115 blood tests each. The median volume of blood taken from patients was 454 milliliters. That's almost half a liter—about 17 ounces.

Those who had more complex surgeries had more blood tests, according to the study authors. And, people who lost more blood tended to stay in the hospital longer and require more transfusions.

Salisbury said the high number of blood tests is evidence of hospital routines that require blood draws day after day "even when there's not a question that they're answering."

"Hospitals need to be aware that this is a problem, and as providers we need to push forward these protocols to limit the amount of [blood loss](#)," he said. According to Salisbury, his own research has shown that more blood draws translate to more cases of "hospital-acquired" anemia—a shortage of [red blood cells](#) that can be serious. Older women are especially vulnerable to this, he said.

Both Salisbury and Engoren said it's difficult for cardiac patients to understand whether they're getting too many blood tests. They said physicians need to be the ones to push for change.

Salisbury said solutions include drawing smaller amounts of blood fewer times per day. A single blood draw may be used for a batch of tests at once, he said, instead of requiring patients to undergo many blood draws per day for different purposes.

Engoren agreed: "Instead of getting a CBC (complete blood count) test at 9 and an electrolyte panel at 10 and a liver panel at 11, frequently they can all be drawn at the same time."

Another solution is to use "blood conservation" devices that return some blood to the body when blood is drawn for a test, Engoren said. This reduces the amount of "wasted" blood that isn't used for a test, he said.

Fewer tests can also lead to lower costs. "While the hospital may charge a lot for these tests, the marginal cost to the hospital of each test is relatively low," Engoren said. "But they can add up."

The larger cost is the blood needed for transfusions to replace missing blood, he pointed out. "Hospitals typically pay the supplying agency \$200 to \$300 for each unit," Engoren said. The new study found cardiac [patients](#) may lose one to two units of blood to blood tests during a hospital stay.

More information: For more about heart surgery, visit the [U.S. National Heart, Lung, and Blood Institute](#).

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