



**PAPER TRAIL:** A hospice chaplain who wrote the newspaper advice column "Annie's Mailbox," formerly "Ask Ann Landers," praised the wisdom in *The Four Things That Matter Most*—a book written by Dartmouth palliative-care expert Dr. Ira Byock.

## Use of blood drops during cardiac surgery

Thanks to good data and clear communication, the cardiac surgery team at DHMC has reduced its use of blood transfusions in recent years. Transfusions can save the lives of patients who lose a large amount of blood, but they also carry risks.

"Years ago, it was just sort of accepted that anybody that had cardiac surgery was going to need to be transfused," says Lawrence Dacey, M.D., a cardiothoracic surgeon and DHMC's chief medical officer. But recently, he notes, studies have shown that transfusions raise the risk of infection in the short term and lead to worse outcomes for patients in the long term.

"Even giving one transfusion increases your risk of long-term mortality," adds Donald Likosky, Ph.D., an assistant professor of surgery.

**Levels:** Once a patient's red blood cell count drops too low, a transfusion is necessary to keep the patient alive. Doctors don't always agree about exactly how low is too low, but today, says Dacey, they're generally willing to allow red blood cell levels to drop lower than was thought to be safe in the past, in part because more is known about the risks of transfusions.

To help patients avoid those risks, Dacey and Likosky helped start an initiative in 2004 to reassess the use of transfusions during heart surgeries at DHMC. The first step was simply to understand when transfusions were typically used and how the decision was made. In this phase,

they began tracking the rate of transfusions during surgery.

The next phase was aimed at trying to reduce the use of transfusions by talking with everyone involved in heart surgeries—including surgeons, anesthesiologists, nurses, and staff from the blood bank. The effort also included bringing in outside experts to give talks about the latest evidence on transfusions.

DHMC's attending cardiac surgeons, who typically make the decision to give a transfusion, then came to agreement on the thresholds at which transfusions would be given. If a patient's red blood cell level dropped below that point, the patient would be given a transfusion. Above that point, the surgical team would keep in mind the goal of reducing the use of transfusions, although a trans-



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**A three-year effort has reduced transfusions during cardiac surgeries at DH.**

**"Even . . . one transfusion increases your risk of long-term mortality."**

fusion could still be provided if the attending surgeon deemed it necessary.

"The goal was not to remove clinical judgment," Likosky says. "The goal was to say, 'This is how we feel we ought to practice.'"

**Track:** During the last phase of the project, the team did not actively discuss the initiative but continued to track transfusion rates. They wanted, Likosky says, to see if the rate would return to previous levels if they stopped focusing on the issue as intently.

The three-year effort resulted in a significant reduction in the transfusion rate. From phase one to phase two, the transfusion rate during cardiac surgery dropped from 33% to 26%. The reduction was not only sustained during the last phase of the effort but declined further to 23%. And patients who did not receive a transfusion were less likely to get an infection or pneumonia while they were hospitalized.

**Consistent:** Likosky and Dacey caution that the process wasn't designed to draw definitive conclusions about patient outcomes. But, Dacey says, these findings are consistent with other reports showing the benefits of avoiding transfusions when possible.

The effort may have come to an end, but the cardiac surgery team continues to keep the findings in mind. "Before you transfuse somebody now, you're thinking long and hard about whether you need to do this," observes Dacey.

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## THEN & NOW

**A reminder of the pace of change, and of timeless truths, from the 1902 DMS Circular of Information:**

In the second-year course in Bacteriology, "special attention is given to the examination of sputum for tubercle bacilli, to the diagnosis of diphtheria, the technic of the Widal serum diagnosis in typhoid fever, and to staining gonorrhoeal pus. Each student is required to isolate a number of different organisms. Special instruction is given to any student desirous of doing research work."



**2000**

Year DMS began a clinical trial of a new tuberculosis vaccine, in partnership with a Tanzanian medical school

**2009**

Year the researchers announced that the trial showed a 39% reduction in the rate of definite TB