Blood Mix-Ups Can Be Deadly, But They Also Can Be Prevented

AT GEORGETOWN University Hospital in Washington, outpatients who come in for a blood transfusion go through a process not unlike the supermarket checkout: A nurse uses a scanning device to check the bar code on the patient's wristband against a label on the donor blood. Since Georgetown began using the bar-code system three years ago in the outpatient department, there's never been a fatal mistake in a blood transfusion.

If only all hospitals had such a system.

A mix-up in blood types in any medical situation can lead to tragic consequences, as made clear by the recent death of a teenage girl at Duke University Hospital who received a heart-lung transplant from a donor with the wrong blood type. Transfusion experts say patients are 100 times more likely to receive the wrong blood than they are to pick up a disease from donated blood.

By some estimates there as many as 2,600 transfusion-related errors annually in the U.S. Some mistakes, such as erroneous transfusions of "universal donor" Type O blood, don't harm patients. But getting the wrong blood type can send your immune system into overdrive, and lead to kidney or lung damage.

While the nation's blood banks have made great strides in screening blood for infectious agents such as HIV, hospitals have made little progress in keeping better track of blood once it is in their facilities and reducing the "noninfectious hazards" of transfusion. And most still rely on archaic methods prone to human error for drawing, storing and administering blood, leaving the potential for mislabeled blood products and switched or lost patient blood samples.

MIXING UP the blood samples from hospital roommates, for instance, "can start a chain of events that could kill somebody," says Gerald Sandler, director of transfusion medicine at Georgetown. He adds that data reported to the Food and Drug Administration indicate that every year about 20 people die from misidentified transfusions, though many believe the number is far higher.

Bar-code systems like the one being used at Georgetown are considered the most promising technology for eliminating blood errors; yet only about 1.5% of U.S. hospitals have them. All blood coming from licensed blood banks is already bar coded, and hospitals have rudimentary scanners that check the code in the lab. What isn't yet common are scanners and bar-code systems on patient floors—a system that would also protect against medication error, which is a much bigger problem than transfusion error. "It's a chicken and egg situation," says Russell Lewis, chief operating officer of Bridge Medical Inc., which makes the bar-coding technology used by Georgetown. Hospitals have been reluctant to invest in bar coding until more pharmaceutical companies and blood banks have codes affixed to their products; pharmaceutical companies are waiting for hospitals to have the scanners.

The good news is that the FDA is expected to require standardized bar-code labels on all medications and biologic products such as blood later this year.

Most errors have to do with misidentifying patients when collecting samples for testing and cross-matching, or when they are about to get a transfusion. "Two-thirds of the problems take place at the bedside," says James P. AuBuchon, who runs blood-bank services at Dartmouth-Hitchcock Medical Center in Lebanon, N.H., and chairs the American Association of Blood Banks transfusion committee. "The greatest risks are getting the wrong unit of blood and inadequate or incorrect identification of the patient, such as getting the blood that was intended for the patient in the next bed."

Dartmouth uses a bar-code system that generates a label right at the patient's bedside from a hand-held device. But Dr. AuBuchon says hospitals need to make procedures for matching blood and patients "routine and repetitive," such as making sure two or even three people verify information. Dr. Sandler of Georgetown agrees that bar coding shouldn't substitute for visual matching. "Even with the technology, it makes sense to double-check it the old fashioned way," he says.

FOR PATIENTS, it pays to stay vigilant. It's a good idea, for instance, to see for yourself if the labels on your blood-sample tubes match your patient identification number or other data on your wristband, avoiding a simple but common mistake.

I learned that firsthand recently at a major East Coast hospital that frequently deals with donors from the same family with the same last names. Arriving at the blood lab with my brother to have our blood collected and analyzed, I noticed that the labels the technician was about to place on my specimen tubes had my brother's first name, Christopher, on them. The technician didn't take any steps to check that she had the right patient, or notice a male name was on a tube she was about to collect for a female patient. Later, when I was set to receive a transfusion of blood cells from my brother, the process had to be delayed for an hour because a blood type and screen hadn't been performed on me. Though that was an important safeguard, it was never made clear why it hadn't been done in the first place.

Since May 2001, the FDA has required more stringent error reporting from hospitals, such as notifying the agency of a mismatched blood unit sent to a patient's bedside even if the error was caught in time—a so-called near miss. A number of hospitals are now adopting a federally funded computer program called Medical Errors Reporting System—Transfusion Medicine to collect and analyze blood mistakes. Howard Kaplan, a New York-Presbyterian Hospital/Columbia University pathologist overseeing the system, says such monitoring can help identify which mistakes staffers make because of reckless behavior. But equally important, it can analyze the "near miss" events that can be studied without fear of punishment.

"Hospitals are starting to recognize the importance of encouraging people to report near misses and take action to see they don't happen again," says Dr. Kaplan.

Looking for My Type

American blood bank groups want the FDA to make this newer type of bar code the standard

Sources: American Association of Blood Banks; American Blood Centers

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