

## BAD BLOOD: THE 9/11 BLOOD-DONATION DISASTER.

by Douglas Starr [Issue date: 07.29.02 ]

If you turned on your television in the immediate aftermath of September 11, you probably saw images of Americans--tens of thousands of them across the country--lining up to give blood. This patriotic offering brought tears to the eyes of many of us. Unfortunately, it created nothing but trouble for the nation's blood banks. Faced with an unprecedented turnout, the American Red Cross and other organizations overcollected so massively that they had to discard thousands of gallons of the perishable liquid. The donor crush caused a cascade of problems: Money was wasted; sub-par blood was collected; and other components, such as platelets, were neglected. Even worse was the general loss of faith in America's blood-collection system that produced a slump in donations from which we're still trying to recover.

The events confirmed something that people in the blood business had long known but never managed to communicate to the public: Mass appeals for blood after a crisis may soothe our sense of wounded nationhood and answer a need for community action; but as a public health response, the practice is useless--or worse.

The custom of mass blood-giving began during World War II when Americans repeatedly rallied to give blood and plasma to our wounded soldiers. Scattered blood banks had been operating before, but the war triggered the first national mobilization. The military assigned a disaster-relief agency, the American Red Cross, to take charge of the collections while drug companies and university labs processed the material. Blood became a key material of the war and a symbol of gritty sacrifice on the home front.

It was easy to be a donor in those days. You'd walk into the blood center, submit to a quick check-up, and tell them if you'd ever had malaria. Doctors would test your blood for syphilis and blood type. Your blood went to the blood bank, and you walked out a hero.

The process has become more complicated since then, mostly because we no longer accept the appalling blood-borne-disease rates of those early days. Today you start by filling out a form with dozens of questions designed to trip you up if you're concealing an unhealthy lifestyle or a disease. Many can be irritatingly confusing, personal, or both, such as this one for female donors: "In the past twelve months have you had sex with a male who has had sex even once since 1977 with another male?" Check yes or no.

Next technicians put your blood through a battery of lab tests for pathogens unknown a few decades ago, such as HIV, HTLV, and Hepatitis C. They separate and save the plasma and platelets and send the packed red cells--the most valuable component--to the blood bank. It takes at least one hour to donate your blood--assuming there's no line--and two days for your blood to make its way to storage. From there it can be shipped to any hospital in the United States, sold to other blood banks, or swapped for other blood types in response to local needs. Like milk, blood is perishable: If red blood cells aren't used within 42 days, they are generally destroyed.

In short, blood banks don't resemble mash units anymore. They've become modern pharmaceutical laboratories requiring sustained, controlled input. "The term 'blood bank' is really



unfortunate," says Dr. Robert Jones, president and CEO of the New York Blood Center on Manhattan's Upper East Side. "We're not a bank at all--we're more like a pipeline."

Usually there's just enough blood in the pipeline: Of eligible Americans, only about 5 percent give regularly. Often the input slows to a trickle, such as during holiday periods or summer vacations, when Americans are preoccupied with family and fun. That's why you always hear blood centers issuing emergency appeals around Christmas and the Fourth of July.

Sometimes, however, the pipeline gets clogged. That's what has happened, according to studies by veteran blood banker Dr. Paul J. Schmidt, after almost every major disaster of the last 25 years--the Chicago elevated-railroad disaster of 1977, the Kansas City Hyatt Regency Hotel collapse of 1981, the Oklahoma City bombing of 1995, the Columbine High School shooting of 1999. Schmidt found that in every case the local blood banks already had enough blood on their shelves to take care of the wounded. The sad truth is that in modern calamities, especially those involving airlines, the death rates are so appalling that few people survive long enough to need blood. Even in a worst-case scenario--say, if an airplane crashed into a sports stadium--local blood centers could either supply what they needed or import it from other regions. Yet after every disaster people queue up at blood centers in an almost Pavlovian response.

That isn't so bad after a local disaster: One blood center can always ship its overflow to others, since the pipeline needs a constant infusion. But when an entire nation mobilizes, the pipeline backs up. And that's what happened in the weeks following September 11, despite the best efforts of those who knew better.

**D**r. Jones reacted typically for a blood banker as the tragedy unfolded. "When I saw those buildings go down, the first thing I thought was: We're not going to need any blood for this. Nobody's going to survive." Nonetheless, he immediately dispatched 600 units of red cells to area hospitals, the bulk of which was never used. As the lines of donors snaked around the block, he put out an announcement: The center would only take blood from people with type O, the "universal" donors; everyone else should go home. But no one left. As thousands of donors moved through the system, centers throughout the city began running short on supplies like blood bags and testing reagents.

**T**he scene was repeated across the United States. So powerful was the symbolic value of blood that other nations offered to give--a well-meaning gesture but something American health officials could never allow. India offered to send blood, even though its supplies are neither adequate nor safe. Wire services ran an unintentionally ludicrous photo of Yasir Arafat donating blood in Gaza for the victims in Washington and New York. By the end of the first day everyone in blood banking knew they faced a glut. But they felt powerless to turn back the tide, especially when people who knew nothing about blood kept publicly urging citizens to give. "Pray, give money, and donate blood," became the mantra of news anchors and politicians. Some compounded the problem by telling people to give at their local hospitals, most of which don't even collect blood.

The naïveté reached the highest levels of government. Around 11 p.m. on September 11, as an exhausted staff of the Washington-area Red Cross slumped around a meeting table, a call came in from the office of the president of the United States: Would they be so kind as to conduct a high-visibility Executive Office blood drive the next morning? Dutifully they did, on little sleep and for no practical purpose. Two days later, well after it became clear the donor spigot simply had to be turned off, they got a call from the U.S. Congress to run a blood drive among senators and

representatives--and to present each member with a videotape of him or her giving blood to show constituents. Not a single unit from these collections went to the victims of 9/11.

The people who knew the most about blood tried vainly to control the flow. In order to avoid bottlenecks in the system, the Food and Drug Administration (FDA) issued emergency waivers to allow new technicians to shorten their training time and to accept blood that had not been fully tested. Such blood was labeled "For Emergency Use Only." On September 14 the Health and Human Services Department held a meeting at which the nation's leading blood-banking organizations agreed to put out a statement telling Americans to stay home and come back in a few months. They were about to issue it when the Red Cross, led by the headstrong Dr. Bernadine Healy, reneged. "What [the Red Cross] did was irresponsible and dangerous," says Dr. Ronald Gilcher, president and CEO of the Oklahoma Blood Institute. "They actually told people to keep donating."

Healy adhered to the obsolete dogma that the Red Cross should never turn away a qualified donor. She also had another plan in mind. The Red Cross had been thinking about creating a frozen blood reserve to make the nation's blood supply more secure. With all the excess blood sloshing around, this might be the right time to launch it. The agency announced a crash program to freeze 100,000 units of blood. Never mind that there was no scenario under which such quantities could imaginably be used, even as a backup supply. (The military, the only population that might require such quantities, has its own independent blood system and frozen reserve.) The Red Cross quickly bought up most of the available blood freezers in the country and gutted a warehouse in Philadelphia to use as a frozen blood bank. But it was unprepared for other realities: For example, in order to freeze blood you need a glycerol solution, which protects the red cells from breaking. There wasn't enough glycerol to treat the quantities of blood Healy envisioned. The Red Cross also lacked aluminum canisters, freezing bags, and even FDA approval to utilize the process they had chosen. In the end they froze fewer than 10,000 units, while tens of thousands of others continued to accumulate and contribute to the overall waste. The subsequent revelation that the agency intended to commit \$50 million of the Liberty Fund for the victims of 9/11 to the frozen blood reserve project was said to be a factor in Healy's resignation. "It was a disaster," says Dr. Harvey Klein, chief of the Department of Transfusion Medicine at the National Institutes of Health (NIH), "a total, total disaster."

**A**s the weeks passed, the cost of the post-9/11 mobilization started to become clear. According to the best available figures, the nation collected about 572,000 more units of blood in the three months following September 11 than it would have otherwise. The "outdate" numbers--the rate at which the blood becomes spoiled and has to be thrown out--remain murky, partially because the United States does not maintain a centralized database and partially because some collectors would rather not broadcast the extent of the waste. Depending on whose estimates and extrapolations you accept, the waste ranged anywhere from 100,000 pints to more than 300,000 pints. True, a lot of plasma was salvaged from those units. But that does not mitigate the colossal waste of red cells. Given that hospitals pay blood banks about \$180 per unit for red cells, the discarded amount represents a total value of anywhere from \$18 million to \$54 million.

Spoiled blood was not the only problem. The blood collected under the FDA's "emergency use" waiver was never used, since it carried the stigma of being not quite the best. Blood that could not reach testing labs in time because of transportation bottlenecks had to be discarded as well. No one has come up with a national figure for this wastage, but Klein, who runs a small blood bank at NIH in Bethesda, Maryland, estimates he had to throw out 14 percent of the blood he collected because of screening errors or testing delays. "Mass appeals," he concludes, "are not effective or safe."

Then there were the collateral effects as the consequences of the deluge rippled through the system. Some centers faced shortages of platelets--an extremely perishable component that's

essential to chemotherapy patients. So many staff members had to be pulled off their normal jobs to cope with the glut of donors that they could not run the machinery to harvest platelets from blood.

The most troubling consequences involved the donors themselves. Donor rates crashed after the initial weeks of the crisis to below where they were before 9/11, as people lapsed into apathy or lost sight of the nation's long-term blood needs. The staffs at many blood centers took names and addresses, asking donors to return when their blood was really needed. But most people didn't. As one blood banker told me: "People came out of the woodwork to donate ... and then they went back into the woodwork." Sadly, one of the lowest return rates was that closest to Ground Zero. Of all the donors who lined up at the New York Blood Center, fewer than 10 percent returned to give blood. Supplies throughout the nation declined so dramatically that by December many blood centers were issuing emergency appeals. Today, despite all the consciousness-raising that 9/11 could have produced, blood supplies are lower than at this time last year.

There's nothing wrong with wanting to give blood and no denying the nation's constant need for the liquid. The country uses 14 million pints per year--more than we consumed during all of World War II. Indeed, it's the routine shortages that plague us--a situation that will get worse as the population ages and as more and more risk groups are banned from giving blood. (Currently the FDA is phasing in a donor ban on people who've spent significant time in Europe, in order to protect the blood system from the theoretical threat of mad cow disease. That ban alone will eliminate 25 percent of New York City's blood supply.) But there are smarter ways to sustain the national pipeline than with patriotic appeals in a crisis.

One way is to make blood-giving more convenient. The reason we need to invoke civic heroism and patriotic duty is that donating has become so difficult. There are thousands of blood centers across the nation, but there never seems to be one around when you want one. "They ought to be as common as Starbucks," joked one blood banker. Perhaps not *that* common--blood centers are expensive and highly regulated--but every mid-sized hospital should have one with long collection hours that fit the schedules of busy donors. Maybe the Red Cross and regional collectors could lease space in hospitals to make their services more widely available, something they have never really considered. That would help compensate for the demise of the big factories and union halls that used to be the staple of community blood-giving.

We also need to collect smarter. All blood is not the same: We need more of certain blood types, such as O, and less of others, such as AB and A. The equipment now exists to take double units of blood from O donors, plasma from ABs, and only the platelets from As; but most centers still use the take-it-all approach.

Finally, we need to look for new categories of blood donors. Gay men face a lifetime ban because as a group they have a statistically higher risk of HIV. The ban is too blunt an instrument: Most gay men are perfectly healthy, and the new lab tests at blood centers can quickly detect the virus. We need to loosen that ban as AIDS becomes an increasingly heterosexual disease. We also need to accept blood from the nearly one million Americans with hemochromatosis, a genetic condition in which the body absorbs too much iron. Doctors treat this condition with phlebotomy, the only modern use for the ancient practice of bloodletting; all that precious blood goes down the drain. There's nothing inherently wrong with using that blood, which according to even conservative estimates could provide hundreds of thousands of pints per year. But because accepting it requires special FDA permission and extra expense, only 29 of the nation's more than 4,000 blood centers do so.

None of this means the end of civic heroism. But the real blood-donor heroes of 9/11 were those who gave blood in the days and weeks *preceding* the attack--after all, it was their blood that was already on the shelves. The question is: How can the rest of us can become more like them?