



Alleviation of Blood Shortages

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I. EXECUTIVE SUMMARY

In recent years, the U.S. blood supply has dropped to record low levels. However, the need for blood stays constant in hospital and emergency settings. This brief will discuss the blood shortage crisis and how it may be alleviated through policies.

II. OVERVIEW

Blood shortages are extremely prevalent, since the demand is high and the supply often cannot meet these needs. Blood is essential throughout all areas of the healthcare field, including surgeries, emergency response, and disease treatment. Every two seconds, an individual in the United States requires a transfusion. But according to the American Red Cross, out of the 38% of people in the nation who are eligible to donate, only around 3% do. To make things more complicated, blood has a 42-day shelf life— after this period, it expires and must be discarded. Low-income and rural areas are particularly hit hard by shortages, as blood is often inaccessible or unaffordable. Millions of people live in these so-called “blood deserts”, areas where blood cannot be given in over 75% of cases where it is necessary, as defined by the Blood DESERT Coalition.

A. Relevance

During the 2020s, the COVID-19 pandemic, natural disasters, and other factors forced schools, workplaces, and organizations to cancel blood drives. In 2022, the Red Cross declared its first-ever national blood crisis, after it faced its lowest number of donors in 20 years. After multiple winter storms in January of 2026, the Red Cross announced another severe shortage after its supply dropped 35% in one month. Seasonal illnesses, especially during cold weather, lead to sharp drops in supply yearly. If this issue is not alleviated, blood products will have to be rationed, which may eventually lead to lower quality of care and more deaths.

III. HISTORY

A. Current Stances

The immediate response to blood shortages has been raising awareness about the importance of blood donations. Unfortunately, there are various barriers that prevent people from taking action. One of these barriers is the time commitment—the blood donation process takes around one hour, which includes a long health questionnaire and screening. Difficulties during the donation, such as not being able to find a vein right away, can lengthen the process even further. Adding transportation time to arrive at and depart from the drive results in a two- to three- hour long process that many do not have the time for. Other factors, including misconceptions about

donation risks and fear of needles, leave people unwilling to give blood.

Organizations are also reluctant to host blood drives. Fulfilling requirements— such as adequate space, air conditioning, power outlets, and volunteers— can be difficult. For example, according to the head of a community center in New Jersey who hosted a blood drive, their organization had to rent a space for \$400 per hour. They were required to have a 7-hour time slot, making the cost \$2,800 to host a drive. Organizations may not find this investment to be worth it, since it is often the case that not many donors show up.

Another method that has been proposed to alleviate blood shortages is walking blood banks. Walking blood banks are systems where a donor pool is prepared in advance through pre-screening for diseases, and in an event of an emergency, the donor pool would be called on to donate blood immediately. This practice eliminates the need for lengthy questionnaires and examinations, making the blood donation process less tedious. Doctors can also collect blood from people at the site of an emergency, use a rapid test to check the blood, and directly transfuse the blood into patients.

Walking blood banks can be very useful in rural areas, mass shootings, and other occasions where blood is needed quickly. The U.S. military utilizes walking blood banks, declaring it as a safe and effective way to provide blood. However, this practice has not seen widespread implementation for contexts other than the military, partially due to the risk of disease transmission. Some doctors and healthcare

officials voice their concerns that inaccurate rapid tests may lead to unsafe blood transfusions. Other healthcare professionals argue that in emergency settings, it would be better to risk disease than to let the patient die without blood.

Lastly, certain researchers have taken a more scientific approach to solving blood shortages by working on blood substitutes. Blood substitutes are substances that carry oxygen around the body, similar to regular human blood. These substitutes may have the potential to entirely replace blood transfusions in emergencies. Options like ErythroMer are being developed and funded by the Defense Advanced Research Projects Agency (DARPA) in the U.S. Department of Defense. ErythroMer is a substitute stored in a freeze-dried powder format that can be mixed with water to be transfused. This makes ErythroMer convenient for storage and transportation, especially in military and emergency settings. It is beneficial because it can be used with any blood type, can be stored for two to five years, and does not carry diseases. Testing on animals has been a success so far, and researchers are working towards human trials.

Nevertheless, ErythroMer is still facing development issues, and has yet to undergo lengthy clinical trials and approval processes, which can take several years. Previous attempts at making blood substitutes have failed due to severe side effects in patients. If researchers run into similar issues during clinical trials, they might have to forgo the idea of implementing ErythroMer altogether.

IV. POLICY PROBLEM

A. Stakeholders

The main stakeholders are patients in hospitals or affected by emergencies. Often patients need blood when their bodies cannot create healthy blood cells, such as in cancer treatment, leukemia (cancer of white blood cells), anemia (deficiency of blood), and kidney disease. Transfusions are also essential when blood is lost during surgery or trauma. Blood shortages limit the amount of blood patients receive, which can delay treatments and surgeries, lengthen hospital stays, and leave people in critical condition.

Blood banks and donors are prominent stakeholders, as they are the ones to supply blood. Blood banks are responsible for expanding blood campaigns through methods like social media, phone calls, and text or email messages. Donors, especially frequent ones, are encouraged to give blood as much as possible.

Hospitals and healthcare professionals are also stakeholders since they have to manage the limited blood supply. Healthcare workers face ethical dilemmas when they are forced to prioritize giving blood to certain patients over others, while still trying to uphold their commitment to caring for all patients equally. Hospitals have to work harder to track blood inventory and healthcare professionals have to monitor patients more closely in case they develop complications from not being treated properly.

B. Risks of Indifference

The risks of indifference include blood shortages being exacerbated to a point where healthcare professionals have to ration blood, prioritizing critically injured patients and leaving others waiting for surgery, treatment, or care. This leads

to a decline in patients' conditions and higher mortality rates. Hospitals may have to decrease their blood inventory from a normal 3+ day supply to a low 0 to 2-day supply, which makes them unprepared for emergencies. Low blood resources could also lead to unsafe transfusions. Blood given to a patient must have the correct blood type and be free from any diseases. During shortages, the correct blood transfusion may not be available, increasing the risk of improper transfusions. It is abundantly clear that steps must be taken to address blood shortages before the health of patients is compromised.

C. Nonpartisan Reasoning

Blood shortages have widespread effects on numerous healthcare systems across the United States. The lives of millions depend on the valuable resource that is blood, therefore it is imperative that we take action. The benefits of alleviating blood shortages include but are not limited to:

- 1) Increase in access to healthcare: more blood resources helps patients get the treatment and surgical procedures they need quickly. Blood is a cornerstone of healthcare— without it, many sectors of modern medicine would not function effectively. With an adequate blood supply, the conditions of patients will improve, chances of survival will increase, and the overall health of the population will improve.
- 2) Improvement in hospital productivity: healthcare facilities will not have to conserve blood, allowing them to maintain their quality of care towards all patients. Blood inventory will stay at a sufficient

level so that hospitals will be well-equipped for emergencies.

- 3) Relieving healthcare professionals: those who work in hospitals and emergency services will have decreased stress from constantly monitoring patients and tracking blood inventory. Workers will not have to worry about their patients falling into critical condition or searching for ways to save blood. Less strain and pressure leads to better patient care and a healthier work environment.

V. TRIED POLICY

The U.S. government has attempted to increase the blood supply during the COVID-19 pandemic. A provision in the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) enacted in 2020 stated that the Secretary of Health and Human Services should create a national donation awareness campaign.

The Food and Drug Administration also revised blood donation restrictions to reduce the deferral period for men who had sexual intercourse with other men (MSMs), women who had sexual intercourse with an MSM, individuals who recently got tattoos or piercings, and individuals who recently traveled to places where malaria is common. Previously, if the people in these categories were exposed 12 months or less prior to blood donation, they were not able to donate. This 12-month deferral period was revised to 3 months, allowing more people to donate blood.

Blood donation centers offer small incentives, such as \$10-20 gift cards, health screenings, clothing or merchandise items (T-shirts, socks,

mugs, etc.), and raffle entries for sporting events, concerts, and large cash prizes. Frequent donors are able to join rewards programs to earn badges, milestones, and prizes. Additionally, some organizations run programs that offer students who host blood drives chances to win scholarships, usually ranging from \$200-2500.

Unfortunately, these policies do not significantly increase the blood donor pool. Awareness campaigns often fall short because people do not want to undergo the tedious, lengthy, and energy-consuming process of donating blood. The categories of people that the FDA targeted with their revisions of donation restrictions are only a small population of the millions of Americans who could donate. Small blood donation incentives and milestones are often not compelling to donors, and blood drive scholarship programs only target students, leaving out organizations and workplaces. To add on, not all students are guaranteed to receive scholarships—often only a few students who recruit the most donors get them.

VI. POLICY OPTIONS

Robust Blood Donation and Drive Incentives

It is evident that small incentives are not sufficient to attract donors. Federal and state governments should collaborate with blood donation centers to implement stronger benefits for donors, including tax deduction or credits, paid leave, higher monetary rewards, free public transportation for certain amounts of time, or healthcare benefits like free or discounted medical appointments. Organizations and students looking to host blood drives can be given monetary grants or tax credits.

These policies will require significant funding and coordination between governments, blood donation organizations, employers, healthcare providers, and public transportation agencies. Public awareness about these incentives will also need to be increased through promotions and outreach. However, these efforts will greatly encourage long-term donor participation and stabilize the nation's blood supply.

Wider Implementation of Walking Blood Banks In Targeted Areas

Walking blood banks are very beneficial in situations where large amounts of blood are needed in a short amount of time. During times where blood cannot be easily accessed, like in mass casualty incidents or in remote settings, walking blood banks can save numerous lives. They can reduce the strain on hospitals that are unprepared for emergencies due to low blood inventory. However, walking blood banks have only been established in a few areas, namely the U.S. military and Southwest Texas. These systems can be difficult to maintain because they involve extensive coordination, funding, and public participation. In addition, concerns about rapid testing inaccuracies and strict safety regulations prevent widespread utilization.

To begin with, state and local governments that are prone to mass casualties or located in rural areas can create walking blood bank databases and encourage donors to register. Donors should be pre-screened and tested for diseases in advance to ensure they can be mobilized rapidly. The federal government should assist in these efforts by providing funding, establishing guidelines, or supporting coordination. Walking blood banks

will prevent the mass depletion of blood resources and reduce the burden on hospitals when blood inventories are low.

Greater Support for the Development of Blood Substitutes

Currently, blood substitutes like ErythroMer are entering the clinical trials, which can present developmental challenges and be costly. Further investment and collaboration is necessary to speed up the process. The Defense Advanced Research Projects Agency (DARPA) of the Department of Defense should organize joint research initiatives and data-sharing agreements between the ErythroMer research team and international institutes developing similar substitutes, such as Nara Medical University in Japan and the University of Cambridge in Great Britain. Rather than competing to create the best substitute, researchers should share their findings to solve problems more efficiently, avoiding obstacles in the development process. If blood substitutes are implemented successfully, they could be able to replace blood transfusions in several medical situations and drastically improve– or even eliminate– blood shortages.

VII. CONCLUSIONS

Blood is crucial to the field of medicine, yet the current shortages continue to endanger patients and burden hospitals and healthcare workers. These shortages must be addressed to protect patients and strengthen the healthcare system. Stronger incentives can encourage more donations and drives, walking blood banks can provide transfusions in vulnerable areas, and support for blood substitutes can result in reduced dependence on blood. By implementing the policies mentioned in this brief, the nation can

ensure that every patient rightfully has access to the lifesaving treatment they need.

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