Safe blood starts with me

Blood saves lives
Safe blood starts
with me. Blood saves lives

At the beginning of this new millennium, we should like to ask people everywhere to safeguard their health by caring for that precious life source, their blood. Good nutrition, a clean and healthy lifestyle, proper prevention and early treatment of disease all contribute to healthy blood. We should like to emphasize the importance of managing blood properly, at the individual and at the global level.

Throughout the world, people have generously given their blood to save the lives of others, and they continue to do so. We thank all blood donors on behalf of those millions of recipients whose lives have been saved through the gift of blood - a unique gift from one person to another, where the donor hardly ever hears a word of thanks from the recipient. We especially express our gratitude to all voluntary, non-remunerated donors who give their blood on a regular basis, thereby providing the strongest foundation for a safe and sustainable blood supply.

We invite you to reflect on this year’s World Health Day slogan, “Safe blood starts with me.” The global community shares a common life source: blood. The need for voluntary donors is a permanent requirement - blood is used round the clock, year in year out.

We urge you to think carefully about this slogan, “Safe blood starts with me”. Each one of us can apply this maxim to our own lifestyle and thus contribute to a global culture of quality and a continuous improvement in critical health-related areas.

Dr Gro Harlem Brundtland
Director-General
World Health Organization

Mr George Weber
Secretary General
International Federation
of Red Cross and Red Crescent Societies
Blood - the fluid of life

The life force in all human beings, regardless of their colour, race or belief, flows through their arteries and veins: it is a red liquid which - depending on whether they are well or ill - bears good and bad tidings. Its various components form a highly developed defence and transport system which gives and saves life.

Blood is a whole world in itself, each component having a specific job - red blood cells transport oxygen throughout the body; plasma transports proteins, including antibodies and clotting factors, and nutrients like glucose for energy around the body; white blood cells constitute a defence mechanism against disease; and platelets ensure that bleeding stops. Blood also carries waste products from all the organs to be evacuated from the body.

Blood is living matter, which can be transfused to save lives. Serious loss of blood due to an accident or disease can cause shock. When oxygen is lacking, the brain cannot function and the heart cannot pump. Blood is also the first life link between a mother and a child. A person's health can be determined by the state of his or her blood, which reveals the innermost workings of the body. Scientists today can diagnose and investigate complex diseases by examining blood. Blood can also transmit diseases from one person to another.

A healthy person has healthy blood. Healthy blood can and does save lives.
A sophisticated defence system

The human body mounts its defence through blood. Blood flows through the various organs and, during its course, detects the presence of foreign elements and identifies any change from normal healthy conditions. Internal biological signals trigger reactions to attacks by viruses and other microorganisms in order to protect the body. Different kinds of white blood cells, each with a specific function, attack and destroy the invaders; blood also transports the waste to other organs for disposal. Antibodies, which protect from disease and infection, are present in the plasma.

Since blood reflects the overall state of health of the body, analysis of the blood can reveal illness and chronic disease. Illnesses can affect different blood cells, harming the body’s defence system and sometimes leading to death. In the case of some genetically transmitted blood diseases, the shape of blood cells and their functioning are affected.

This highly developed defence system needs right conditions in order to function at peak performance. Healthy lifestyles, adequate nutrition, and good sanitation all contribute to maintaining every individual’s blood quality as well as global blood quality.
Health, a common wealth
Our world. Our blood.
We all share the source of life that is blood.
From the day that human life is conceived, blood fulfils a life-giving and nurturing role. In the womb, the mother’s blood ensures that the fetus is supplied with crucial oxygen and nutrients and benefits from the mother’s antibodies against diseases. Outside the womb, blood has another critical function for the newborn, that of defence against health risks as it begins to produce its own antibodies.

Around 500,000 women die in childbirth each year, mainly in the developing world. In some cases, at birth there can be heavy loss of blood and the mother may suffer distress and even die. Blood may then be needed for transfusion to save her life. Many women do not have access to safe blood, and as a consequence they run the risk of receiving contaminated blood. If only healthy individuals gave sufficient safe blood and if all the blood were systematically tested, many women who die in childbirth could be saved.

The better a mother’s health, the less likely that she will need blood. Proper care from the outset of pregnancy, identification of risk factors and, if required, early treatment reduce the risks and increase the likelihood that transfusion can be avoided.
What is safe blood?

Safe blood is blood that does not contain any viruses, parasites, drugs, alcohol, chemical substances, or other extraneous factors that might cause harm, danger or disease to the recipient. People who donate blood should be in good health and should not suffer or have suffered from any serious illnesses. The recipient should not be harmed by receiving blood; the donor should not be put at risk by giving blood.

The world relies on safe blood, yet only 20-30% of the world’s health systems are able to provide a safe and adequate blood supply. There are a limited number of healthy people donating blood. Every year, over 100 million blood units are collected from blood donors. Many millions more are still needed to fulfill global requirements and ensure availability of blood when and where it is needed.

Although blood can be screened for infectious agents such as viruses, it cannot be treated to kill viruses and micro-organisms because the red blood cells would be destroyed by the methods currently available. Supplies of blood tests for screening blood are sometimes interrupted in poor countries. Honesty in answering the donor questionnaire and at interviews is critical for the safety of blood transfusion. Blood donors take on a remarkable responsibility when offering themselves as life-savers.

Governments should take every opportunity to review the requirements of all health authorities and see that they are committed to supporting the blood services with sufficient funding. The health authorities should also ensure that all necessary safety procedures are available and in place, are supported financially, and are protected and enforced by national legislation.
Safety of blood and blood products depends on many factors, starting with the recruitment and recall (at safe intervals) of voluntary, non-remunerated blood donors who have been eliminated from any risk. Safety is ensured by providing clean conditions for blood collection, appropriate screening of donors, extensive testing, proper storage, and appropriate clinical use of transfusion.
Virus transmission and blood

Some diseases that affect the lives of millions of people are caused by viruses passing from one person to another through the blood. These risks can be decreased by ensuring safe blood supplies.

The human immunodeficiency virus (HIV), which is carried in the blood and body fluids, already affects over 33 million people, causing about 2.5 million deaths each year. In some countries, one in every four persons carries HIV, which can be passed to another person during sexual intercourse. The virus can also be transmitted from mother to child, inside the womb, or through breastfeeding. Hepatitis viruses, leading to liver disease and even cancer, can also be transmitted through the blood.

There are ways to prevent transmission of bloodborne disease. Simple tests can detect the presence of antibodies against such viruses in a person’s blood. Tests for HIV and hepatitis viruses and for other infectious diseases are used in many countries, but still not widely enough. WHO and UNAIDS have worked with the diagnostics manufacturers to develop and make available cost-effective, simple and rapid tests to screen donated blood for infectious disease markers.

Testing of all donated blood should be systematic. This will result in only safe blood being available for transfusion. Systems for pre- and post-donation counselling should be established so that donors, where necessary, can be referred for further counselling and care.

In addition, safe and appropriate use of injections and skin-piercing procedures should be applied. Whenever possible, alternatives to injections, such as oral medication, should be given, and sterile procedures respected in all cases to avoid transmission of bloodborne pathogens.
Genetically determined diseases and blood

Some genetic diseases affect the blood, such as haemophilia, thalassaemia and sickle-cell disorder. Persons with these diseases require regular supplies of safe blood to replace their deficient blood.

Haemophilia, which affects mainly men and occurs in about 1 in 5000 male births, is caused by a shortage of clotting factors: when a person is injured, there is a risk of bleeding. Accurate identification of haemophilia is made by measuring the level of specific clotting factors in the blood. Blood tests need to be carried out in a laboratory which has appropriate facilities and experience with these tests. To date, with comprehensive care and by using products containing the missing clotting factors, made from blood donations or biotechnology, even people with severe haemophilia lead nearly normal lives. In most developing countries, blood is the only source of treatment available.

In sickle-cell disorder and thalassaemia the red blood cells are unable to carry enough oxygen. Thalassaemia may lead to mild or severe anaemia and premature death. Blood transfusion is currently the main treatment for thalassaemia, which gives the person optimal chances of survival; blood is also needed for patients with sickle-cell disorder.

A strong health service infrastructure is essential to ensure continued monitoring of populations for the early detection and treatment of these diseases.
Vector-borne diseases, parasites and blood

Many parasites and viruses which affect hundreds of millions of people worldwide are transmitted from person to person by bloodsucking insects (vectors), and are then transported in the body via the blood. These diseases include malaria, filariasis, dengue fever, Chagas disease, leishmaniasis and African sleeping sickness. Some of these diseases cause severe anaemia or blood loss and may require the use of blood products or transfusions in order to save lives. Malaria, which affects some 300 million people a year, may cause miscarriages, stillbirths or underweight, anaemic children.

Simple preventive measures such as sleeping under a bed net can provide protection against night-biting malaria mosquitoes and from carriers of certain other insect-transmitted diseases. Appropriate insecticides, good environmental sanitation to reduce vector breeding places, and biological control methods are commonly used to combat these diseases.

Schistosomiasis and the hookworms are worm infections, affecting some 1400 million people worldwide. Both diseases cause blood loss, resulting in damage to tissues and anaemia. Cost-effective drugs exist to treat these infections effectively and safely, thereby reducing the need for blood and blood products. It has been demonstrated that regular treatment of women and children with anthelmintic drugs in endemic areas increases their haemoglobin levels.
Good health contributes to safe blood

Good health depends on lifestyle and disease prevention. Eating a balanced diet with an adequate vitamin and micronutrient supply, keeping a clean environment, and avoiding risk situations help to keep people, and their blood, healthy. A healthy society means more safe blood and a reduced need for blood transfusions.

Iron-deficiency anaemia is one of the most widespread micronutrient deficiencies in the world. It affects about 50% of pre-school-age children and pregnant women in developing countries. In children, it affects growth and impairs cognitive performance. In pregnant women, it increases the risk of diseases and maternal mortality. Additional iron in the form of iron supplements combined with a diet containing iron-rich food can improve iron status.

Cancer patients are frequently recipients of blood transfusions, especially in industrialized countries. Reducing the overall number of cancer patients through prevention measures would reduce the need for heavy treatment schedules and thus the need for transfusions. This would have many benefits including an overall gain in health and quality of life, and in economic terms as well.

Education, from primary schools onwards, plays an important part in maintaining a healthy society and promoting risk-free behaviour, and in cultivating positive attitudes towards voluntary, non-remunerated blood donation. Raising people’s awareness about the importance of unpaid blood donation should increase the number of regular, safe blood donations.
Emergency, conflict and health

Transfusion was used during the First World War (1914-18) when blood was transported to the battlefront in modified, clean, sterilized milk bottles. The first mobile blood bank was set up in the 1930s during the Spanish civil war.

The need for an effective health service is felt most during emergencies of any kind, whether war, natural disasters, large-scale accidents or human conflicts. Yet, it is at such times that the system often breaks down, being unable to cope with the magnitude of the demand. Internal conflicts or war may destroy hospitals and clinics, while power shortages often disrupt their work and can ruin medical stocks that require refrigeration, including blood. Caring for large numbers of wounded people puts an added burden on already strained systems.

Whenever such events occur, the need for blood donation and transfusion services increases. Many people spontaneously donate blood during a crisis, but when the crisis is over, the countries are left without a sustainable blood supply. Such situations can be avoided by setting up systematic and efficient blood services with lists of regular donors.

Blood can safely be donated by a healthy person three or four times a year. After each withdrawal of blood it takes 36 hours for the body to reconstitute the fluid volume and 21 days for the blood cell count to return to a normal level. Blood donors are key players in medical and surgical treatment, and save their communities millions of dollars.
Give safe blood and save a life

Anyone may need blood at any time. A serious illness or accident can happen anywhere in the world, in the course of daily routine or while travelling, with the loss of blood in life-threatening quantities. It is therefore in everyone’s interest to have safe blood supplies available worldwide.

Thanks to the people who give safe blood anonymously, lives are saved. All blood donors must know that they can save lives only if the blood given is safe (that is, free of infection). Likewise, each person should understand that when giving unsafe blood (disease-carrying) he or she will be responsible for transmitting potentially life-threatening infection to, and even killing, another person.

Experience has shown that the safest donor is one who gives blood at least twice a year without receiving money or goods in exchange, understands the principle of altruism, answers questions for donor selection honestly, and will defer or exclude himself/herself from donation if there is any risk to the recipient.

Governments and health authorities must put into place systems for the proper selection and deferral/exclusion of potential donors so that only safe blood is collected, and for the testing of all donated blood. These systems will include effective infrastructures to collect, process and store the blood; training for health care workers to deliver blood in sterile conditions; and promotion and implementation of appropriate clinical use of blood.

An individual in need of blood should receive blood that is as safe as possible; it is the privilege of an individual to give safe blood.
A safe and well-organized blood transfusion service

An integrated national health policy should aim at self-sufficiency in blood supplies, an important component of which is blood safety. In many countries, access to health services providing safe blood, diagnostic imaging and laboratory services, and appropriate medical practices is limited. More than 60% of the world's population lacks access to these basic requirements. The need for a safe and adequate blood supply requires the commitment and support of the national health authorities, various organizations, blood donors, specialist laboratories, and blood and blood product service infrastructures.

A comprehensive strategy to ensure safe blood will include:

- commitment and support for a comprehensive blood programme by the national health authorities;
- lists of voluntary, non-remunerated blood donors from low-risk populations;
- high priority to eliminate family, replacement and paid blood donor systems;
- screening of donated blood and blood products to avoid transfusion-transmitted infections;
- safe injection technique;
- safe and appropriate clinical use of blood;
- implementation of quality control systems throughout the blood chain;
- education of physicians, health workers, and the community at large.

The first recorded blood transfusion into a vein or artery took place in France in 1667 - and was unsuccessful. A cupful of lamb's blood was transfused into a man via a silver tube. The man survived two transfusions and then died. It was only in the twentieth century that blood transfusions became safe medical practice.
The appropriate use of blood...

In many cases, blood transfusion may not be the most appropriate, cost-effective or safe therapeutic intervention. It is important to minimize the number of inappropriate blood transfusions through the effective clinical use of blood or blood products and the assessment of existing alternatives. This implies a respect for the use of blood, which should only be transfused if no alternative treatment is possible.

WHO recommends three key strategies:

- Developing national guidelines for giving transfusions
- Training people who prescribe blood to avoid unnecessary or inappropriate transfusions
- Ensuring accessibility and availability of volume replacement fluids, such as crystalloids and colloids, for use where appropriate.

Crystalloids and colloids are used to restore blood volume when there are enough red blood cells circulating, but not enough fluid (plasma). Crystalloids are a sterile salt solution which can be used for fluid replacement without harming the cells or the tissues. Colloids are sterile, complex sugar solutions which can remain longer in the circulation.
Research and progress in blood products

To date, there is no available man-made substitute for red blood cells. Although considerable progress has been made in both preventive and curative blood-derived products, red blood cells remain a rare commodity.

Progress in technology has made it possible to separate all the components of blood and to store them at temperatures which are best suited to maintain their viability. Biotechnology research has increased our knowledge and enables some of the different components of blood to be identified and purified. Research is continuing into new blood-derived products and technologies.

Blood tests have become more sophisticated and are faster and more cost-effective, yet in many countries blood is still not screened systematically. More resources have to be identified and allocated to ensure continuous screening programmes.
A global resource to be shared

Blood, the life source that flows in every person, can be shared to help others. Blood saves lives; safe blood begins with each one of us. This unique resource upon which all lives are dependent can be shared. It is up to each and every one of us, as global citizens, to help others.

Contact your local blood transfusion service if you are healthy and can donate blood, and commit yourself to helping another person by donating blood regularly.

What you can do!

People around the world need blood.

How often have you seen a situation where you wondered what YOU can do to help!

You CAN think about giving blood and take positive steps to see whether you are eligible to give blood. Contact your local blood transfusion service/blood bank.

If you have already given blood, become a regular/repeat donor.
Advocating safe blood services and systems

In 1975, the World Health Assembly passed a resolution (WHA28.72) urging Member States of WHO:

a) to promote the development of national blood services based on voluntary non-remunerated donation of blood;

b) to enact effective legislation governing the operation of blood services and to take other actions necessary to protect and promote the health of blood donors and recipients of blood and blood products.

In recent years, the serious threat of infection by such agents as HIV and hepatitis B and C viruses to recipients of blood and blood products has highlighted the urgency of the need to develop safe and effective blood transfusion services. Underlying the advocacy efforts of both WHO and the International Federation of Red Cross and Red Crescent Societies is the push
for quality blood transfusion. There is a global need for more safe blood and sustainable, comprehensive blood programmes. WHO and the International Federation recommend that:

- all adults consider whether they are eligible to donate blood and, if they are, to become regular donors;
- transfusion therapy should be accessible, without discrimination, to all those in need;
- civic education should be taught in schools at all levels and include education on blood donation;
- health authorities should implement strategies and programmes of education and promotion for preventive health care, provide alternatives to blood for volume replacements, and provide access to essential drugs which may reduce the need for transfusion;
- all blood supplies should be systematically tested prior to use;
- blood transfusion services should be allocated sufficient funds to implement training programmes for developing quality systems and to maintain sustainable systems;
- all blood programmes of the International Federation of Red Cross and Red Crescent Societies should be familiar with the quality concepts and the Federation’s quality manual, and become advocates for developing quality systems in blood centres;
- in a true spirit of capacity-building, special assistance should be given to develop strong blood programmes systematically in countries that are in most urgent need of a safe and sustainable blood supply.
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**World Health Organization**  
Blood Safety and Clinical Technology  
World Health Organization  
20 avenue Appia  
CH-1211 Geneva 27  
Switzerland

Tel.: + 41 22 791 21 11  
Fax: + 41 22 791 07 46  
Website: www.who.int/world-health-day/

**International Federation of**  
Red Cross and Red Crescent Societies  
**Blood Department**  
P.O. Box 372  
CH-1211 Geneva 19  
Switzerland

Tel.: + 41 22 730 42 22  
Fax: + 41 22 733 03 95  
Website: www.ifrc.org