



Key global fact and figures in 2011¹

Key facts

- **Global Blood Collection:** Around 92 million blood donations are collected annually from all types of blood donors (voluntary unpaid, family/replacement and paid). Approximately half of these blood donations are collected in high-income countries, home to 15% of the world's population.
- **Voluntary Unpaid Blood Donations:** In 62 countries, national blood supplies are based on 100% or almost 100% (more than 99.9%) voluntary unpaid blood donations. Forty countries collect less than 25% of their blood supplies from voluntary unpaid blood donors. The World Health Organization's (WHO) goal is for all countries to obtain all blood supplies from voluntary unpaid donors by 2020.
- **Infrastructure:** About 8 000 blood centres in 159 countries report on their collections. The average annual collection per blood centre is 30 000 in high-income countries, 7 500 in middle-income countries and 3 700 in low-income countries, demonstrating wide differences in the efficiency of blood collection across countries and income groups.
- **Blood Screening:** In 39 countries, blood donations are still not routinely tested for transfusion-transmissible infections (TTIs) including HIV, hepatitis B, hepatitis C and syphilis; 47% donations in low-income countries are tested in laboratories without quality assurance.
- **Blood Processing:** Only 31% of the blood collected in low-income countries is separated into blood components. The capacity to provide patients with the different blood components they require is thus still limited in these countries.
- **Use of Blood:** Globally, 106 countries have national guidelines on the appropriate clinical use of blood. However, only 13% low-income countries - in comparison to 30% middle-income countries and 78% high-income countries - have a national haemovigilance system to monitor and improve the safety of the transfusion process.

National blood policy and organization

The provision of safe and adequate blood is a government responsibility and should be an integral part of each country's national health care policy and health care infrastructure. WHO recommends that every country should put in place policies, systems and structures to ensure the safety, quality, accessibility and timely availability of blood and blood products to meet the needs of all patients who require transfusion. All critical activities within a national blood system should be

¹ Based on WHO Global Database on Blood Safety (GDBS) 2008, with responses received from 164 countries, covering 92% of the world's population.

coordinated at national level to promote uniform standards; economies of scale; consistency in the quality and safety of blood and blood products, and best transfusion practices.

- 120 of 161 (75%) countries reported having a national blood policy in 2008, compared with 98 of 162 (60%) countries in 2004. Of the 64 countries which reported lacking a national blood policy in 2004, 30 countries had formulated a national blood policy by 2008.
- 92 of 160 (58%) countries reported having specific legislation covering safety and quality of blood transfusion: 69% high-income countries have such legislation, as do 61% middle-income countries. Only 37% low-income countries have laws in place.
- About 8 000 blood centres (in 159 countries) report collecting, on an average, 10 000 blood donations per centre (ranging from 20 to almost 500 000). The average annual collection per blood centre is 30 000 in high-income countries, 7 500 in middle-income countries and 3 700 in low-income countries - demonstrating wide differences in the efficiency of blood collection across countries and income groups.

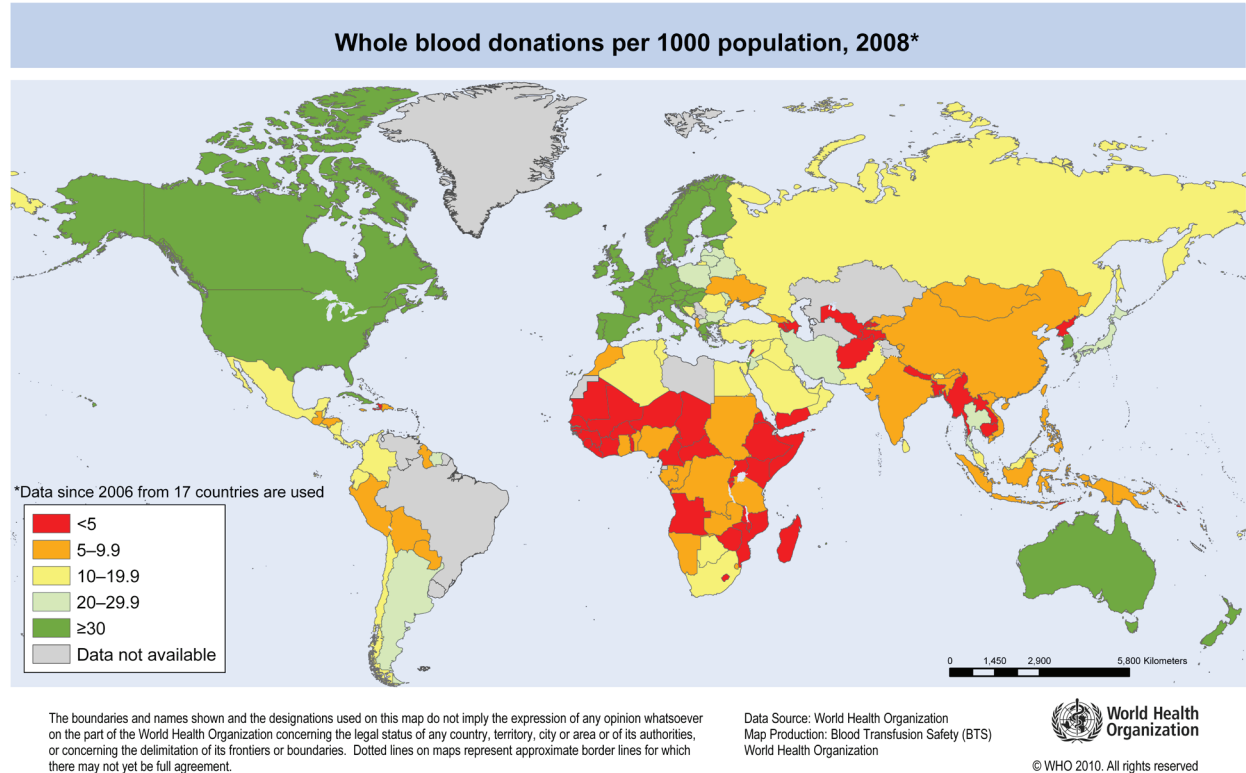
Blood supply

A total of 164 countries provided 2008 data to WHO on 91.8 million blood donations². Those countries account for a total of 6.2 billion people, representing 92% of the global population. While the need for blood is universal, there is a major imbalance between developing and developed countries in the level of access to safe blood.

- 48% of the 91.8 million donations are collected in high-income countries, home to about 15% of the world's population. Forty-three countries in the African Region report collecting 4 million units of blood, which account for 4.3% of global donations, although these countries are home to around 12% of the global population.
- Ten countries account for 65% of the global blood collection; in order of magnitude, these are: United States of America, China, India, Japan, Germany, Russian Federation, Italy, France, Republic of Korea and United Kingdom.
- Data on whole blood donations per 1 000 population are an indicator for the general availability of blood in a country. The lowest levels of availability are found in low- and middle-income countries. The median whole blood donation rate in high-income countries is 36.4 donations/1 000 population (range 13.3 – 64.6). The rate in middle-income countries is 11.6 (range 1.65 – 36.2) and in low-income countries, 2.8 (range 0.4 – 8.2) donations per 1 000 population.
- 82 countries report collecting fewer than 10 donations per 1 000 population. Of these, 39 countries are in WHO's African Region, nine in the Americas, seven in the Eastern Mediterranean Region, eight in Europe, seven in South-Eastern Asian and twelve in the Western Pacific. All are low- or middle-income countries.

² Globally, it is estimated that around 103 millions of blood donations are collected annually.

Whole blood donations per 1 000 population



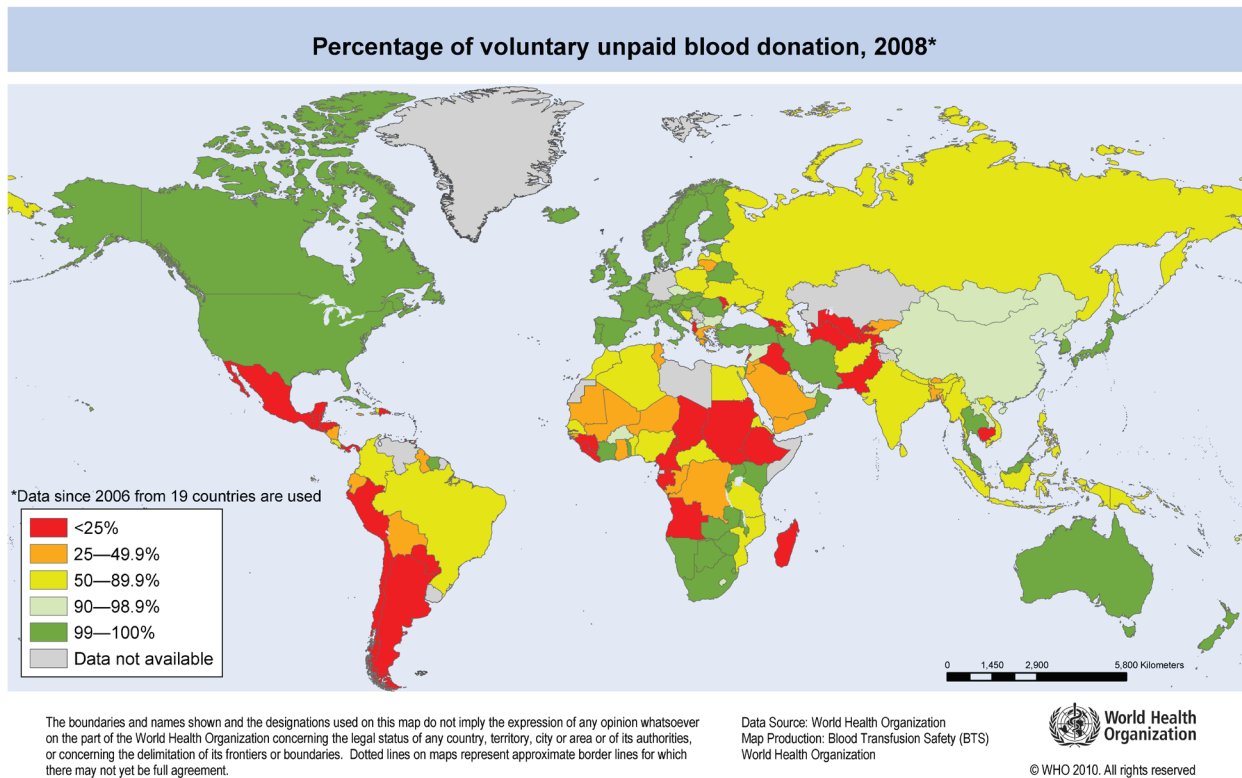
Blood donors

There are three types of blood donors: voluntary unpaid; family/replacement and paid. Voluntary unpaid blood donors are vital for ensuring a sufficient, stable blood supply. A well-established voluntary unpaid blood donor programme can contribute to a significant reduction in the risk for infections such as HIV, hepatitis B, hepatitis C and syphilis.

- 62 countries³ report collecting 100%, or nearly 100% (more than 99%), of their blood supplies from voluntary unpaid donors, as compared to 39 countries in 2002.
- 70 countries report a more than 10% increase of voluntary unpaid blood donations in 2008 as compared to the figures from previous year.
 - India reports the greatest increase in the number of voluntary unpaid blood donations from 3.6 million in 2007 to 4.6 million in 2008. Other countries reporting a substantial increase in voluntary unpaid blood donations in 2008 include: Algeria (178 000), Argentina (149 000) Belarus (174 000), Bulgaria (112 000), Colombia (100 000), Philippines (154 000), Republic of Korea (308 000), Vietnam (104 000), and Sri Lanka (98 000).
 - The most significant increase in the percentage of voluntary unpaid blood donations during the period is reported by Bulgaria (from 21% in 2007 to 94% in 2008), followed by Afghanistan (from 15% to 88%), Belarus (from 56% to 99.9%), Algeria (from 23% to 63%) and Costa Rica (from 29% to 63%).
- 23 countries (all low and middle-income countries) report a more than 10% decrease in voluntary unpaid blood donations as compared to figures from previous years.

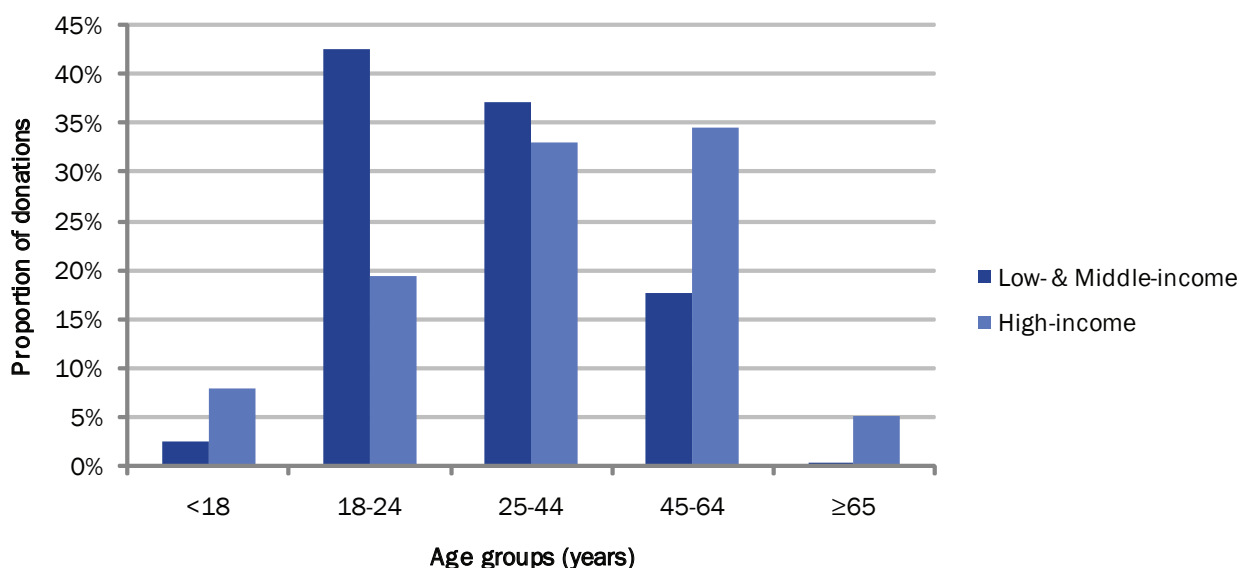
³ Based on WHO GDBS 2008 data or latest available data if data of 2008 is not available.

Percentage of voluntary unpaid blood donations



- Data about the profile of blood donors shows:
 - 100 countries (including 74 low- and middle-income countries) provide data on the gender of blood donors. Overall, just 30% of blood donations are given by women, although this ranges widely. In 25 countries, more than 40 donations are given by females. In 16 others countries (including nine in countries in WHO's Eastern Mediterranean Region, three in Africa, two in South-East Asia and two in the Western Pacific), less than 10% donations are given by female donors.
 - 77 countries (including 56 low- and middle-income countries) provide data on distribution of blood donations by the age group of donors. Overall, 5% donors come from the under-18 group, 31% from people aged 18-24, 35% from the 25-44 group, 26% from 45-64-year-olds and 3% from those over 65. In richer countries, 27% of donations are made by people younger than 25 years old. In low and middle-income countries, 45% of donations come from that age group. In richer countries, 40% of donations are made by people aged over 44, while 18% of donations are collected from the same age group in low- and middle-income countries.
- In 40 countries, less than 25% of the blood supply is collected from voluntary unpaid blood donors. A significant proportion of the blood supply in these countries is still dependent on family/replacement and paid blood donors. Twenty-six countries still report collecting paid donations in 2008, around 800 000 donations in total.

Blood donations from donors of different age group, by country income group



Source: WHO Global Database on Blood Safety, 2008

Family/replacement and paid blood donations

Low-income countries	36%
Middle-income countries	27%
High-income countries	0.3%

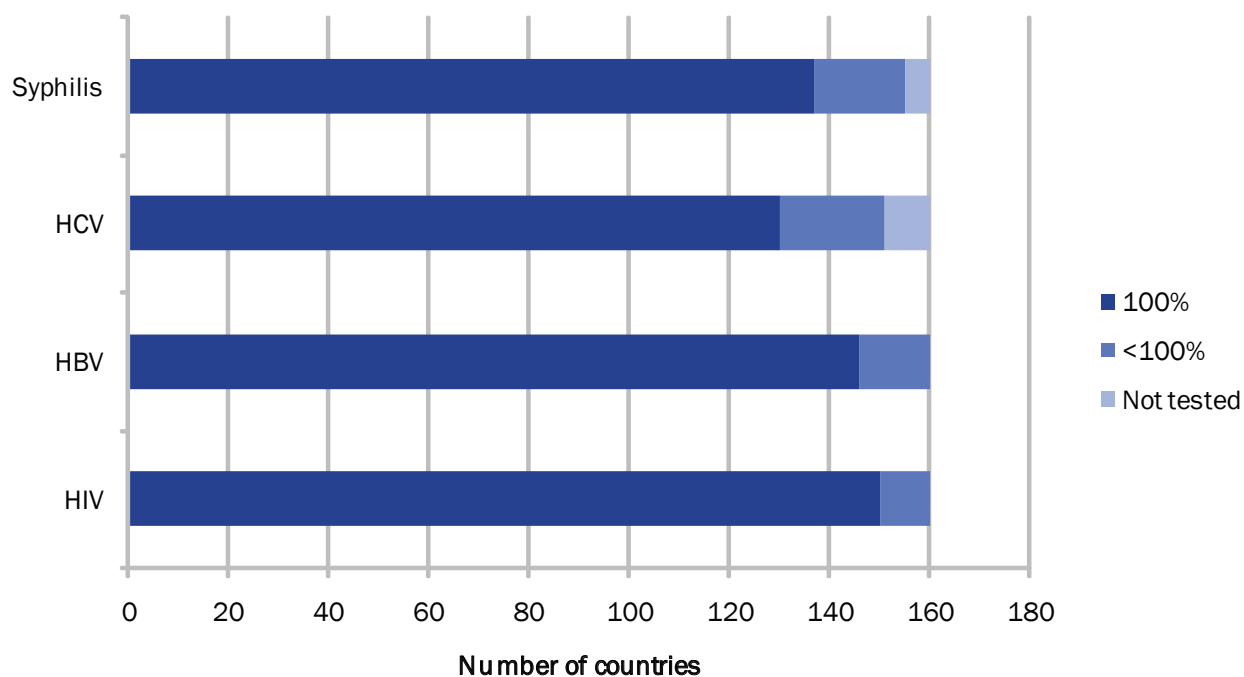
Blood screening and processing

WHO recommends that all blood donations should be screened for evidence of infection prior to the release of blood and blood components for clinical or manufacturing use. Screening of all blood donations should be mandatory for HIV, hepatitis B and C and syphilis.

- In 39 countries, blood donations are not routinely tested for transfusion-transmissible infections (TTIs) including HIV, hepatitis B, hepatitis C and syphilis.
- Irregular supply of test kits is one of the most commonly reported barriers to screening. One third of the 98 reporting countries, indicate stock-outs of test kits for TTIs during the 12-month reporting period.
- 97 of 164 countries provide data on whether blood donations are screened in a quality-assured manner (use of standard operating procedures and participation in an external quality assessment). Overall, 89% of donations are screened following basic quality procedures: 97% in high-income countries, 82% in middle-income countries and 53% in low-income countries.
- The median prevalence rate⁴ of TTIs in blood donations in high-income countries is much lower than the rate in middle- and low-income countries.

⁴ The prevalence is calculated based on number of donations tested and number of donations with positive result in confirmatory test, or if confirmatory tests were not performed, number of donations with reactive results in screening test.

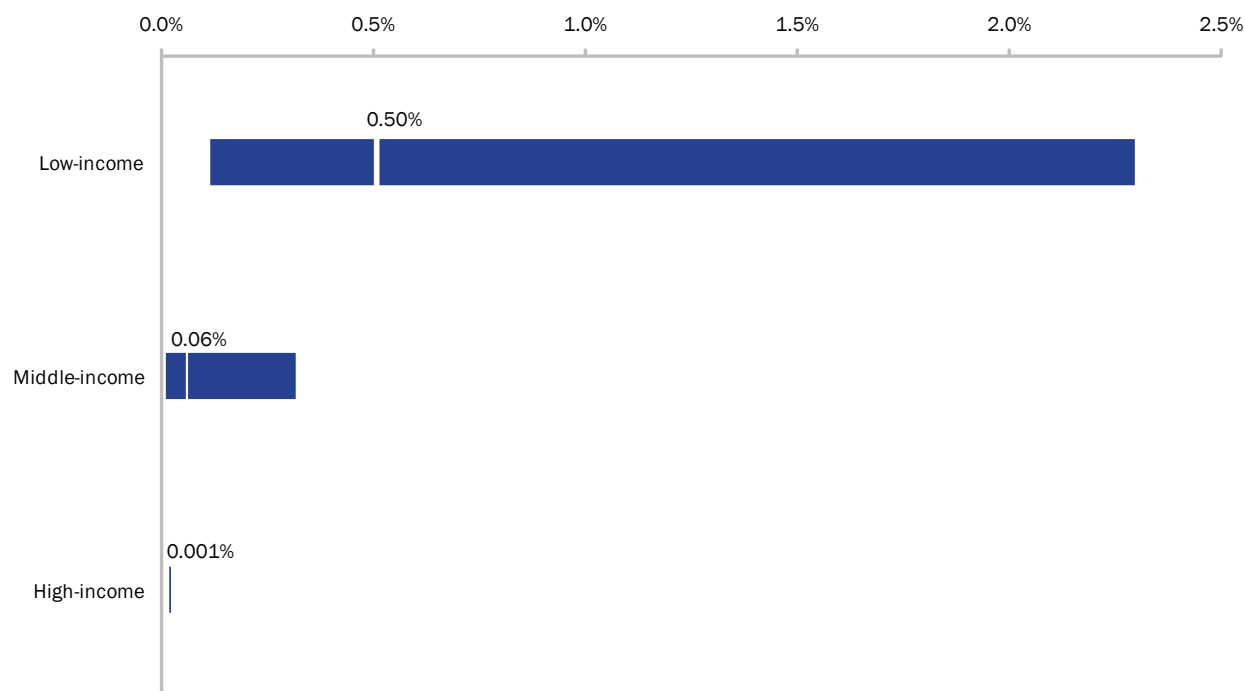
Laboratory screening for TTIs



HIV, human immunodeficiency virus; HBV, hepatitis B virus; HCV, hepatitis C virus

Source: WHO Global Database on Blood Safety, 2008

Media (interquartile range) prevalence of HIV in blood donations, by country income group



The number showed are median prevalence; with the left and right ends of the bars represent the lower and upper quartiles respectively.

Source: WHO Global Database on Blood Safety, 2008

- Blood collected in an anticoagulant can be stored and transfused to a patient in an unmodified state. This is known as ‘whole blood’ transfusion. However, blood may be used more effectively if it is separated into components, including red cells concentrates, fresh frozen plasma, cryoprecipitate and platelet concentrates, so it can meet the needs of more than one patient.
 - 91% of the blood collected in high-income countries, 72% of that in middle-income countries and 31% of that in low-income countries is separated into components.
 - 157 countries report on separating blood into components, revealing that half of all centres processed whole blood donations into components.

Clinical use of blood

National data on the use of blood products are limited, but some studies suggest that transfusions are often given when simpler, safer alternatives can provide equal or greater benefit. Not only is this a waste of a scarce resource but it also exposes patients to the risk of serious adverse transfusion reactions or infections transmitted through the blood. All countries should have transfusion committees to implement national policy and guidelines on rational use of blood in hospitals and a national haemovigilance system to monitor and improve the safety of the transfusion process.

One hundred and six countries report having national guidelines on the appropriate clinical use of blood, while 57 report having a national haemovigilance system. Only 13% low-income countries, in comparison of 30% middle-income countries and 78% high-income countries, report having such a national system in place.

At the same time, 140 countries (including 37 high-income countries, 63 middle-income countries and 40 low-income countries)⁵ identify more than 47 000 hospitals performing blood transfusions, serving a population of around 4.2 billion. Based on the data provided by countries:

- 76% of the hospitals performing transfusions in high-income countries, 53% in middle-income and 50% in low-income countries have a transfusion committee
- 83% hospitals performing transfusion in high-income countries, 56% in middle-income and 47% in low-income countries have mechanisms to monitor clinical transfusion practice
- 91% of hospitals performing transfusion in high-income countries, 53% in middle-income and 38% in low-income countries have a system for reporting adverse transfusion events.

There is a need in many low and middle income countries for sustained efforts to collect sufficient blood donations and maintain a strong enough health infrastructure to deliver transfusion services to all those who need them. There is also a need to build capacity to safely administer blood transfusions

Patients transfused

Ninety countries (20 high-income, 45 middle-income and 25 low-income)⁶ report that more than 9 million patients received blood transfusions during the reporting year. There are great variations

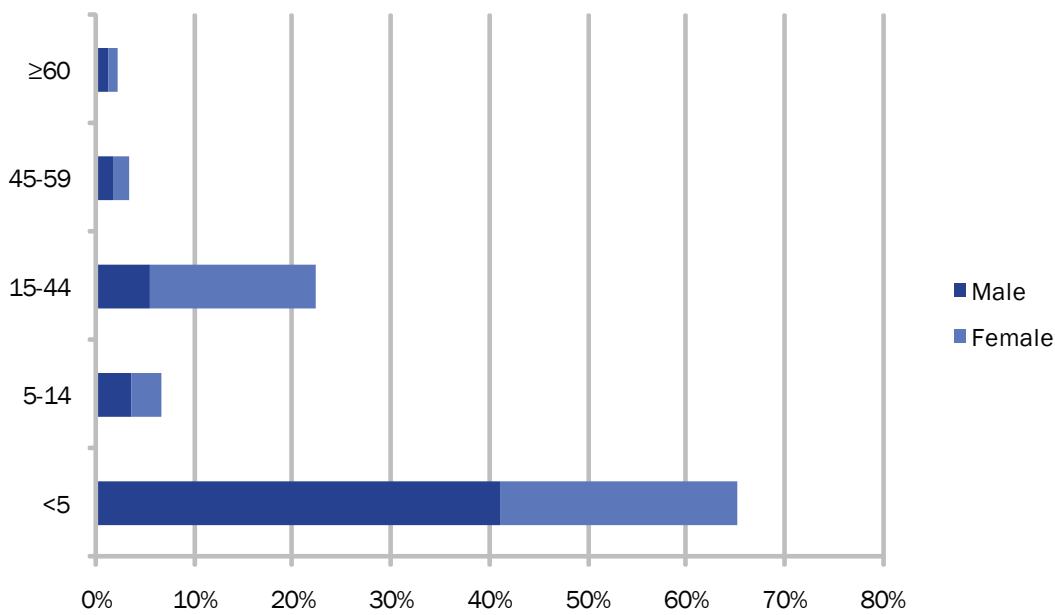
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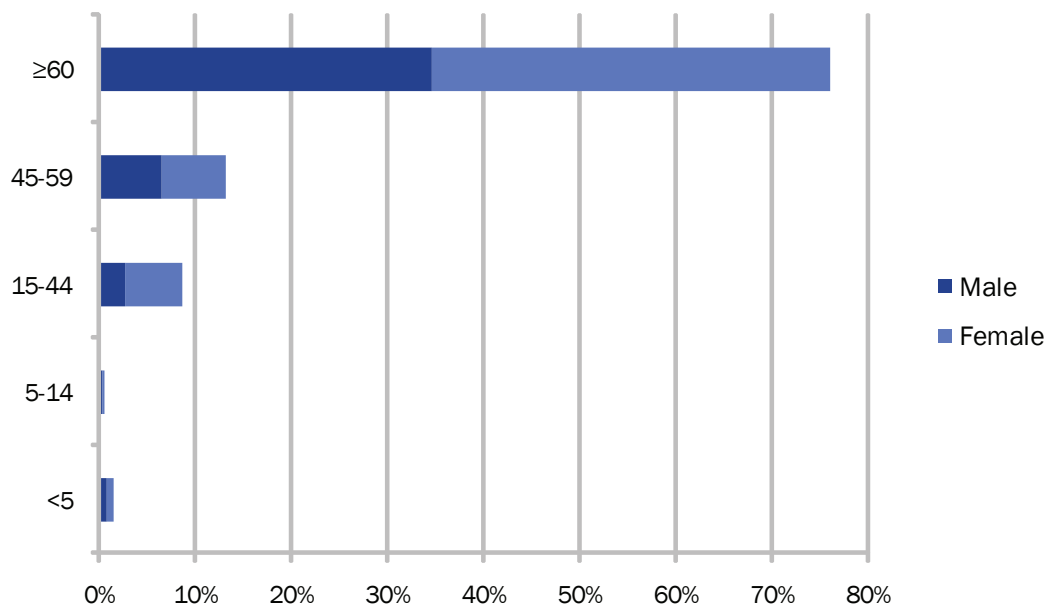
on the age distribution of patients transfused between developed and developing countries. For example, in Denmark, the most frequently transfused patient group (76% of all transfusions) is over 65 years old. In Benin, most transfusions are among children under five (65% of all transfusions) followed by females aged between 14 and 45 (17% of all transfusions). In high-income countries, transfusion is most commonly used for supportive care in cardiovascular and transplant surgery, massive trauma and therapy for solid and haematological malignancies. In low- and middle-income countries it is used more often in pregnancy-related complications and severe childhood anaemia.

Age and gender distribution of patients transfused in Benin and Denmark

Benin (patients transfused: 55 459)



Denmark (patients transfused: 53 834)



Source: WHO Global Database on Blood Safety, 2008

WHO response

WHO has been at the forefront of the movement to improve blood safety as mandated by successive World Health Assembly resolutions. The WHO strategy for blood safety and availability, endorsed by the World Health Assembly, addresses five key areas:

- The establishment of well-organized, nationally-coordinated blood transfusion services to ensure the timely availability of safe blood and blood products for all patients requiring transfusion
- The collection of blood from voluntary unpaid blood donors from low-risk populations
- Quality-assured testing for TTIs, blood grouping and compatibility testing
- The safe and appropriate use of blood and a reduction in unnecessary transfusions
- Quality systems covering the entire transfusion process, from donor recruitment to the follow-up of the recipients of transfusion.

WHO has supported a large number of countries in developing their national blood services through its Blood Transfusion Safety programme, providing policy guidance and technical assistance on working towards equitable access to safe blood and blood products and their safe and rational use.

The objectives of the WHO Blood Transfusion Safety programme are to:

- Support countries in developing and/or strengthening efficient and sustainable national blood systems with national blood policies/plans, strategies, infrastructure, organization and management structure and regulatory mechanisms, integrated within the national health care system.
- Develop norms, standards, best practice guidelines, tools and materials on various steps of the blood transfusion process from donor to patient to ensure blood safety.
- Promote the harmonization of national and international efforts to ensure sufficient safe blood products through bilateral and multilateral collaboration and also through global partnerships, i.e. the Global Forum for Blood Safety and the Global Blood Safety Network.
- Build capacity in countries through structured training activities for the establishment of cost-effective sustainable nationally coordinated blood services, financial management systems, data and quality management systems, voluntary unpaid blood donation, donation testing, blood cold chain, haemovigilance, education and training in blood transfusion, and the clinical use of blood in medicine, obstetrics, paediatrics, surgery and anaesthesiology, trauma and burns.
- Work with partners to observe, promote and support World Blood Donor Day.
- Provide scientific and evidence-based guidance and support on risk assessment.
- Collect, analyse and disseminate reliable information on blood safety and availability through the WHO Global Database on Blood Safety and Blood Safety Indicators.
- Promote research and development in the provision and appropriate use of safe blood and blood products.