



Universal Access to Safe Blood Transfusion



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Executive Summary

Each year, more than 100 million people sustain injuries and more than five million die from violence and injury. Road traffic accidents are the second leading cause of all deaths and the primary reason for serious injury in people aged 5 to 29 years.¹ More than 536 000 women die each year during pregnancy or childbirth, 99% of them in developing countries.² Haemorrhage is the principal cause of maternal deaths worldwide, accounting for up to 44% of maternal deaths in some areas of sub-Saharan Africa.³ Up to 20% of maternal mortality and 15% of child deaths have been attributed to severe anaemia due to malaria in the Southern African Region.⁴ Timely access to safe blood transfusion is a life-saving measure in many of these clinical conditions and can also prevent serious illness in these patients.

More than 30 years after the first World Health Assembly resolution (WHA28.72) addressed the issue of blood safety, equitable access to safe blood and blood products and their safe and rational use still remain major concerns throughout the world. To address the challenge of inadequate access to safe blood transfusion, the Blood Transfusion Safety team at WHO headquarters organized a ‘Global Consultation on Universal Access to Safe Blood Transfusion’ on 9–11 June 2007 in Ottawa, Canada. This consultation was organized with the objectives to review the current challenges to global blood safety and availability and to analyse the strategies for ensuring universal access to safe blood transfusion. The strategies outlined in this document also provide a direction for the development of the WHO Global Strategic Plan for Universal Access to Safe Blood Transfusion 2008–2015.

The consultation assessed the nature and magnitude of current problems and reviewed progress relating to global blood safety and availability, access to safe blood and blood products and their rational use, with particular focus on developing countries. Country experiences and innovative approaches to the implementation of the WHO strategy for blood safety and availability were reviewed. The consultation identified ways to integrate blood transfusion into healthcare systems as a cross-cutting service that underpins the achievement of the health-related Millennium Development Goals (MDGs).

Known and emerging threats to blood safety and the impact of measures to contain them on the adequacy and accessibility of national blood supplies were also reviewed. Opportunities for using wider global health initiatives to promote blood safety and availability were explored. The consultation participants shared their experiences in order to refine evidence-based strategies for blood safety. They also defined new approaches to developing effective, sustainable national blood programmes and promoting safe clinical transfusion practice for patients’ health and safety.

Recommendations were made to WHO and other key stakeholders to strengthen the implementation of key strategies for ensuring access to a safe and sufficient blood supply, to achieve 100% voluntary blood donation and to ensure 100% quality-assured testing of donated blood. These also include recommendations for optimizing blood usage for patient health, developing quality systems in the transfusion chain, strengthening the workforce, keeping pace with new developments and building effective partnerships.

1. *Injury. A leading cause of the global burden of disease, 2000*. Geneva, World Health Organization, 2002.

2. *Maternal mortality in 2005. Estimates developed by WHO, UNICEF, UNFPA and the World Bank*. Geneva, World Health Organization, 2007.

3. WHO analysis of causes of maternal death: a systematic review. *Lancet*, 2006, 367:1066–1074.

4. *Africa Malaria Report, 2003*. Geneva, World Health Organization/UNICEF, 2003.

A Safe Blood Saves Lives

Blood transfusion is an essential component of health care which saves millions of lives each year. Every second, someone in the world needs blood for surgery, trauma, severe anaemia or complications of pregnancy. Despite ongoing efforts, it will still be many years before artificial substitutes can routinely replace the need for donated human blood.

Even though blood is universally required for the management of patients suffering from cancer and blood diseases such as aplastic anaemia, thalassaemia, sickle cell disease, haemophilia and leukaemia, the pattern of blood usage differs markedly across the globe. In developed countries, transfusion is most commonly used to support advanced medical and surgical procedures, including trauma, cardiovascular surgery, neurosurgery and transplantation. In countries where diagnostic and treatment options are limited, a much greater proportion of blood is used to treat women with obstetric emergencies and children suffering from severe anaemia, often resulting from malaria and malnutrition.

Whatever the degree of development of the health care system, transfusion is the only option for survival for many patients. Every country needs to meet its requirements for blood and blood products and ensure that blood supplies are free from HIV, hepatitis viruses and other life-threatening infections that can be transmitted through unsafe blood. Blood safety is integral to the WHO HIV/AIDS plan to scale up efforts to prevent HIV infection and for the achievement of the health-related Millennium Development Goals on reducing child mortality, improving maternal health and combating HIV/AIDS.⁵

Blood transfusion is a unique technology that blends science with altruism. Though its collection, processing and use are technical, its availability depends entirely on the extraordinary generosity of the blood donor who donates this most precious of gifts – the gift of life. Safe transfusion not only requires the application of science and technology to blood processing and testing, but also social mobilization to promote voluntary blood donation by sufficient numbers of people who are healthy and are at low risk of infections that can be transmitted to the recipients of their blood.



B Universal Access to Safe Blood Transfusion

While the need for blood is universal, millions of patients requiring transfusion do not have timely access to safe blood and there is a major imbalance between developing and industrialized countries in access to safe blood. Of the estimated 80 million units of blood donated annually worldwide, less than 45% is collected in developing countries, home to 80% of the world's population.

The average number of blood donations per 1,000 population is 10 times higher in high-income countries than in low-income countries. It is generally recommended that the equivalent of 1–3% of the population should donate blood to meet a country's needs.

Of the 73 countries that had donation rates of less than 1% of the population (fewer than 10 donations per thousand people) in 2006, 70 are developing countries. Data from sub-Saharan Africa show that fewer than 3 million units of blood were collected in 2006 for a population of nearly 600 million people.⁶ The inequity in the availability of blood is also manifested within countries, with some major urban areas having access to the majority of blood available.

The prevalence of HIV, hepatitis viruses and other blood-borne infections has been reported to be lowest among voluntary unpaid blood donors who give blood purely for altruistic reasons. Higher infection rates are found among family or family replacement donors who give blood only when it is required by a member of the patient's family or community. Worldwide, the highest rate of infection is found among donors who give blood for money or other form of payment. Adequate stocks of safe blood can only be assured by regular donation by voluntary unpaid blood donors. By 2006, only a total of 54 countries reported having achieved 100% unpaid voluntary blood donation.

Even where sufficient blood is available, many recipients are exposed to avoidable, life-threatening risks through the transfusion of unsafe blood. Data in 2006 from 132 countries reveals that 31 (23.5%) countries have less than 100% screening for at least one of the four infection markers for HIV, HBV, HCV and syphilis with many countries unable to provide complete information regarding screening for infection. Even when blood is tested, often the testing is either incomplete or has inadequate quality assurance. Serious blood shortages and the lack of a reliable donor base also contribute to an increased risk of transfusion-transmitted HIV and viral hepatitis. An inadequate stock of blood forces a reliance on unsafe replacement or paid donors and also increases the risk of the issue of blood without adequate testing. Bacterial contamination during blood collection or processing poses a further risk of infection.

In many countries, the risk of transmission of infections through transfusion is further compounded by an insufficient infrastructure and systems for ensuring a safe blood supply. These include a shortage of trained staff, irregular supplies of test kits or use of poor quality test kits and the lack of a reliable supply system and appropriate cold chain facilities. Furthermore, safety measures can also be disrupted by a fragmented blood supply system, with varying technical standards and no central supervision.

Paradoxically, despite a markedly inadequate blood supply in many countries, transfusions are sometimes given unnecessarily when the availability and use of simpler, less expensive treatments would provide equal or greater benefit. Not only does this expose patients needlessly to the risk of potentially fatal transfusion reactions, it also widens the gap between supply and demand and contributes to shortages of blood and blood products for patients who really need them.

Evidence-based strategies for blood safety and availability have been successfully implemented by most developed nations where patients requiring transfusion support in any part of the country usually have timely access to safe blood. In contrast, despite tangible progress, many developing and transitional countries are unable to meet their national requirements for blood and blood products at all times. In many countries, the development of blood transfusion services has been largely restricted to major cities and universal access is still not guaranteed for those in most critical need for safe blood for their survival. Furthermore, the need for blood continues to grow globally as health systems become more developed, with improved diagnostic and treatment options

5. UN Millennium Development Goals. <http://mdgs.un.org/unsd/mdg>; <http://www.who.int/mdg/goals/en/index.html>

6. WHO Blood Safety Indicators 2006, preliminary analysis.

and increasingly sophisticated medical and surgical procedures requiring blood transfusion. These factors are compounded by population growth and changing demographics, with ageing populations requiring more medical care.

Today, more than 30 years after the first World Health Assembly resolution (WHA28.72) addressed the issue of blood safety, and at the midway point in the UN Millennium Project, equitable access to safe blood and blood products and the rational and safe use of blood transfusion still remain major challenges throughout the world. Unless urgent scaled-up action to achieve universal access is taken globally, it will have a direct impact on the achievement of the health-related Millennium Development Goals and the provision of effective support to health care systems in a range of clinical disciplines that are dependent on the availability of a safe and sufficient blood supply.

C WHO Blood Transfusion Safety Programme

With the goal of ensuring universal access to safe blood, WHO has been at the forefront of the movement to improve blood safety as mandated by successive World Health Assembly resolutions.

The global need for blood safety and availability has been highlighted in the following WHA and Executive Board (EB) resolutions and regional resolutions that provide specific direction on strategies and activities within individual regions:

- 1975: WHA Resolution WHA28.72: Utilization and Supply of Human Blood and Blood Products
- 1987: EB Resolution EB79.R1: Blood and Blood Products
- 1995: WHA Resolution WHA48.27: Paris AIDS Summit
- 1999: DC-PAHO/AMRO Resolution CD41.R15: Strengthening Blood Banks in the Region of the Americas
- 2000: WHA Resolution WHA53.14: HIV/AIDS: Confronting the Epidemic
- 2001: RC-AFRO Resolution AFR/RC51/R2: Blood Safety Strategy for the African Region
- 2002: WHA Resolution WHA55.18: Quality of Care: Patient Safety
- 2003: WHA Resolution WHA56.30: Global Health Sector Strategy for HIV/AIDS
- 2005: WHA Resolution WHA58.13: Blood Safety: Proposal to Establish World Blood Donor Day
- 2007: WHA Resolution WHA60.24: Health Promotion in a Globalized World
- 2007: WHA Resolution WHA60.29: Health Technologies

The WHO Blood Transfusion Safety Programme at WHO-HQ, Geneva, evolved from the WHO Global Programme on AIDS and the Global Blood Safety Initiative of the late 1980s. In 2000, Safe Blood was declared an organization-wide priority and Blood Safety was designated the theme of World Health Day 2000. This was co-sponsored by the International Federation of Red Cross and Red Crescent Societies and was celebrated by ministries of health, blood transfusion

services, blood donor organizations, nongovernmental organizations, professional bodies and community organizations throughout the world.

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 non-remunerated blood donors from low-risk populations
- Quality-assured testing for transfusion-transmissible infections, 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, the sole UN programme to provide 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 Member States in developing and/or strengthening efficient and sustainable national blood programmes with appropriate government commitment, support and regulatory mechanisms, integrated within national health care systems
- Develop norms, standards, best practice guidelines, tools and materials on various steps of the blood transfusion process 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 such as the Global Collaboration for Blood Safety
- 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, testing of blood, blood cold chain, haemovigilance, education and training programmes in blood transfusion, and the clinical use of blood in medicine, obstetrics, paediatrics, surgery and anaesthesiology, trauma and burns
- Work with partners to observe and promote 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.

D Global Initiative on Safe Blood for Safe Motherhood

Globally, more than half a million women die each year during pregnancy, childbirth or in the postpartum period – 99% of them in the developing world. About 25% of those deaths are caused by severe bleeding during childbirth, making this the most common cause of maternal mortality.

Of the 20 countries with the highest maternal mortality ratios, 19 are in sub-Saharan Africa where the lifetime risk of maternal death is 1 in 16, compared with 1 in 2 800 in rich countries.² Regional rates, however, mask very wide disparities between countries. Regions with low overall mortality rates, such as the European region, contain countries with high rates. Within one single country there can be striking differences between subgroups of the population. Rural populations suffer higher mortality than urban dwellers, rates can vary widely by ethnicity or wealth status and remote areas bear a heavy burden of deaths.⁷

Severe bleeding during delivery or after childbirth is the most common cause of maternal mortality and contributes to around 34% of maternal deaths in Africa, 31% in Asia and 21% in Latin America and the Caribbean.³ Postpartum bleeding is unpredictable and the quickest of maternal killers – it can kill even a healthy woman within two hours, if unattended. Access to a safe and sufficient blood supply could help to prevent the deaths of a significant number of mothers and their newborn children each year.

In developing countries, pregnant women are particularly vulnerable to blood shortages and account for a disproportionate number of HIV, hepatitis B and hepatitis C infections through unsafe blood because they are one of the main groups of patients requiring blood transfusion. However, the transmission of HIV through unsafe blood transfusion is preventable – and is, in fact, the only approach to HIV prevention that is almost 100% effective. The transmission of hepatitis and other bloodborne infections through unsafe blood is equally preventable.

Key life-saving intervention

Blood transfusion has been identified as one of the eight key life-saving interventions that should be available in first-referral level healthcare facilities providing emergency obstetric care.⁸ Timely, appropriate and safe blood transfusion during and after labour and delivery can make the difference between life and death for many women and their newborns.

On the occasion of World Blood Donor Day 14 June 2007, with the theme of ‘Safe Blood for Safe Motherhood’, WHO launched a new initiative to improve the availability and use of safe blood to save the lives of women during and after childbirth. The initiative is the beginning of a broader blood safety agenda redefined during the Global Consultation on Universal Access to Safe Blood Transfusion, held in Ottawa, Canada, and aims to work towards universal access to safe blood transfusion in support of the Millennium Development Goals.

The objectives of the Global Initiative on Safe Blood for Safe Motherhood are to:

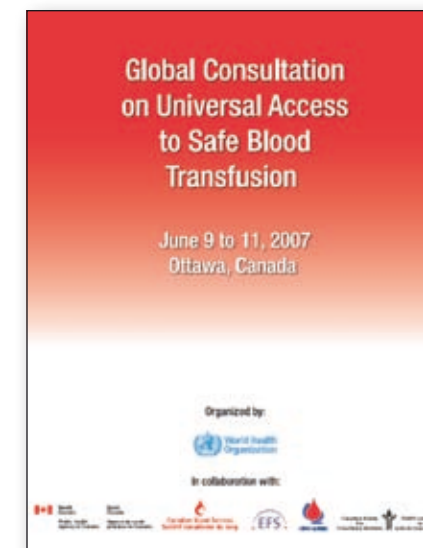
- Provide technical support in the areas of voluntary blood donation, safe blood collection, quality-assured testing and best clinical practices to strengthen the capacity of blood banks and district hospitals to provide adequate supplies of safe blood.
- Improve access to safe blood to manage pregnancy-related complications as part of a comprehensive approach to maternal care. This includes good antenatal care, prevention and timely treatment of anaemia, assessment of the need for transfusion and safe blood transfusion given only when really required.
- Train clinicians, nurses, technicians and other key health personnel at peripheral and district level facilities through its regional networks across the world.

The WHO Blood Transfusion Safety programme is committed to universal access to safe blood transfusion and supporting the global community, in particular the developing world, to ensure that safe blood is available for all patients needing transfusion in a timely manner, thus contributing to patients’ health, safety and survival.

E Report of the Global Consultation on Universal Access to Safe Blood Transfusion, 9–11 June 2007, Ottawa, Canada

1 Introduction

To address the challenge of inadequate access to safe blood transfusion in developing countries, the Blood Transfusion Safety team at WHO headquarters organized a ‘Global Consultation on Universal Access to Safe Blood Transfusion’ on 9–11 June 2007 in Ottawa, Canada. The



consultation was organized in collaboration with Health Canada, the Public Health Agency of Canada, Canadian Blood Services, Héma-Québec, the Canadian Society for Transfusion Medicine and Établissement Français du Sang. The consultation was timed to precede a global event marking World Blood Donor Day on 14 June 2007 that was hosted by Canada.

The consultation was attended by about 100 participants. They included members of the WHO Expert Advisory Panel on Transfusion Medicine, international experts and representatives of WHO Collaborating Centres, national blood transfusion services, international organizations and developmental partners.

The onset of the HIV/AIDS pandemic in the 1980s brought blood safety into the global limelight. In developed countries, the lessons learned from the legal, financial and public health consequence of the HIV/AIDS crisis have led to the effective implementation of blood safety policies with a ‘zero-tolerance’ approach to maintaining the safety of national blood supplies. In developing countries, however, transfusion transmissible infections (TTIs) are still a cause of grave concern. Many countries still rely on unsafe family/replacement or paid donors and are unable to consistently screen all the donated blood for TTIs in a quality-assured manner.

7. *The World Health Report, 2005. Make every mother and child count.* Geneva, World Health Organization, 2005.

8. *Guidelines for monitoring the availability and use of obstetric services.* UNICEF/WHO/UNFPA. New York, NY, UNICEF, 1997.

Evidence-based strategies for blood safety and availability have been successfully implemented in most developed countries and some transitional and developing nations. However, despite the proven effectiveness of these strategies, their implementation is progressing slowly in many countries.

Today, at the midway point in the UN Millennium Project and the MDGs, internationally agreed-upon goals to be met by 2015, the world is still a long way from achieving universal access to safe blood transfusion. This will have a direct impact on the achievement of the health-related MDGs to reduce child mortality, improve maternal health and combat HIV/AIDS.

This report analyses the current situation of global blood safety and availability, identifies the major challenges to be addressed, reiterates the urgency of addressing these problems in developing countries, and outlines the necessary steps to improve access to safe blood transfusion, particularly in developing nations. The implementation of the strategies and recommendations contained in this report will lead to significant improvements in universal access to safe blood transfusion globally. The strategies and recommendations outlined in this report also provide a direction to the development of the WHO Global Strategic Plan on Universal Access to Safe Blood Transfusion, 2008–2015.

2 Keynote Address: Investing in Maternal and Child Health — Achieving the Millennium Development Goals

Presenter: Ms Daisy Mafubelu, Assistant Director-General, Family and Community Health, WHO-HQ

Ms Mafubelu critically analysed the progress on the two United Nations' Millennium Development Goals specifically relating to maternal and child health. She highlighted that no clear progress has been made towards MDG 4: Reducing the under-five child mortality by two-thirds between 1990 and 2015. She reiterated that, alarmingly, almost 90% of newborn deaths still occur in sub-Saharan Africa and Asia. Similarly, no progress has been reported for MDG 5: Improving maternal health by reducing the maternal mortality ratio by three-quarters between 1990 and 2015. Deaths resulting from complications of pregnancy and childbirth are still extremely high in sub-Saharan Africa, with one death every minute.

Assistance with delivery by skilled attendants was identified as a key component in reducing maternal mortality. Some progress has been made in this regard in Eastern and South-eastern Asia and Northern Africa. It was made clear that investments in maternal health would help to reduce maternal (MDG 5) as well as newborn mortality (MDG 4). This should also include improving equitable access to safe blood, considering that severe bleeding during and after delivery is the commonest cause of maternal mortality. Good antenatal care would also provide a unique opportunity to prevent and reduce the spread of HIV and malaria.

Ms Mafubelu concluded that political commitment by the Health Ministers of the African Union and continuous support by the G8 should help to better channelize necessary resources for ensuring the achievement of the MDGs. It was highlighted that 'poor solutions for poor countries' would not be acceptable.

3 Challenges in Achieving Universal Access to Safe Blood Transfusion

3.1 A global perspective on transfusion safety

Presenter: Dr Neelam Dhingra, Coordinator, Blood Transfusion Safety, WHO-HQ

Dr Dhingra reviewed the current status of the global blood safety situation and identified trends and current challenges in ensuring universal access to safe blood.

The presentation covered the main aspects related to the need for access to a safe blood supply, including a global overview of the blood supply and safety situation, and key milestones and achievements of the WHO Blood Transfusion Safety programme. Dr Dhingra emphasized that maternal mortality could be significantly reduced if safe blood was available in all healthcare facilities providing comprehensive emergency obstetric care. Key facts and figures on maternal mortality, severe malaria, anaemia and trauma were presented.

The main challenges identified were organizational ones, such as fragmentation and low efficiency of blood services' operations, lack of tangible political commitment and support, and poor institutional coordination. Difficulties in ensuring the sustainability of blood services were elaborated upon. These could be due to inadequate financial resources or trained human resources, inadequate integration of blood transfusion services in health care systems and problems of geographically isolated communities of small populations.

Blood shortages, low donation rates and high discard rates were seen as impediments in making safe blood available to all patients in all situations in a timely manner. It was mentioned that considerable reliance on family/replacement and paid donations in many countries, high prevalence of transfusion-transmissible infections in some regions and a shrinking base of safe voluntary blood donors also contributes to unsafe blood transfusions. A total of 79 countries with donation rates of <1% (< 10 donations/1000 population) in 2004 were identified as priority countries requiring urgent attention and support. The safety of the blood supply is considered important for patients' health, for public trust in the blood transfusion service and for the avoidance of legal and financial penalties.

Dr Dhingra highlighted the major challenges to universal access to safe blood transfusion, which include a weak donor interface and clinical interface with blood services, poor quality systems and traceability of blood between donor and patients, unsafe clinical transfusion practices and unnecessary use, and significant variations in blood prescribing patterns.

3.2 Continuing challenges in achieving universal access to safe blood transfusion

Moderator: Professor Marcela Contreras, National Blood Service, UK

Professor Contreras moderated a panel discussion on sharing and exchanging experiences on universal access to safe blood transfusion from different regions of the world. The discussion focused on identifying continuing challenges, understanding critical factors and constraints and also on prioritizing needs in different regions of the world. The panelists included all WHO regional focal points on blood safety.

African region

Dr Jean-Baptiste Tapko, Regional Adviser, Blood Safety, WHO-AFRO, identified low policy implementation rate, inadequate financial resources, high prevalence of transfusion-transmissible infections, lack of quality systems and considerable reliance on family/replacement donations in many countries as continuing challenges in the African region. The sustainability of national blood programmes was also identified as a major concern.

Americas region

Dr José Ramiro Cruz, Regional Adviser, Laboratory and Blood Services, PAHO/WHO-AMRO, identified the lack of availability of reliable data from blood services, hospital-based services and other blood banks as a major challenge. The absence of mechanisms to assess the efficiency of blood transfusion services and a lack of understanding of the true need for blood and blood products were highlighted as the areas requiring attention. Dr Cruz mentioned that high discard rates of blood collected in the hospitals as compared to the blood services was an important consideration for discouraging blood collection in hospital blood banks. Lack of oversight and regulation of blood transfusion services, inadequate systems of data collection, reliance on family/replacement donors and the transfusion of inadequately tested or untested blood were also noted as major issues.

Eastern Mediterranean region

Dr Nabila Metwalli, Regional Adviser, Blood Safety, WHO-EMRO, mentioned that the Eastern Mediterranean region consisted of a heterogeneous group of countries varying in their level of development. Several countries showed a high degree of fragmentation of blood transfusion services. Natural or man-made disasters presented a considerable threat. She also mentioned that aid management was characterized by inefficient and dumping practices in the region. The rational clinical use of blood products was still the main problem.

European region

Dr Valentina Hafner, Regional Adviser, Blood Safety, WHO-EURO, identified the increasing need for blood to address the requirements of an ageing population and a shrinking donor base as key challenges. Intensive cross-border movement between European countries, both by foreigners and locals, has led to the dissemination of diseases. Several countries are still dependent on paid donations and are unable to adequately screen all donated blood for infections. Cost-containment policies have caused further pressure on health care systems, with a lack of prioritization for safe blood programmes. Emerging new technologies pose further challenges to implementation.

South-east Asian region

Dr Rajesh Bhatia, Regional Adviser, Blood Safety, WHO-SEARO, mentioned that there was strong diversity within the region with regard to the requirement for blood and blood products. Seven key areas identified as challenges and needing urgent attention were: lack of political commitment and poor implementation of policies, lack of sustainable and adequate funding for developing services, limited programme management capabilities, poor inter-sector collaboration with programmes such as malaria and maternal health, the need to identify factors leading to success and failures, myths and misconceptions related to voluntary blood donation, and a lack of career structures for trained personnel.

Western Pacific region

Mr Yu Junping, Blood Safety Specialist, WHO-WPRO, also highlighted that the diversity of the region poses a considerable challenge (varying from big countries to small islands). There is also a strong economic diversity and a discrepancy in accessibility between cities, rural regions and even islands. Other challenges facing the countries in the region were identified as the high prevalence of hepatitis B and HIV, a reliance on family donors who are probably paid, the fragmentation of services with low efficiency, increased blood usage, and geographical isolation. Testing methodologies also varied ranging from the use of sophisticated technology in some to rapid tests in others. Many Pacific countries are still not testing 100% of donated blood for HIV.

4 Strategies for Universal Access to Safe Blood Transfusion

This session included presentations and discussion for reviewing effective country strategies on safe blood transfusion, with a focus on sharing experiences, lessons learned, innovative approaches and critical success factors.

4.1 Planning and managing a national blood programme: translating policy into practice

Presenter: Dr R. M. Bindusara, Director, National Blood Transfusion Services, Sri Lanka

Dr Bindusara shared her experiences in the planning and management of the national blood programme in Sri Lanka. She also described the measures that were implemented to strengthen the blood transfusion services in the country. In the 1990s, the blood transfusion service consisted of one central blood bank and several hospital blood banks with inadequate infrastructure, supplies and training. These conditions seriously influenced staff motivation and interest in participation. After serious incidents related to transfusion-transmitted HIV and a dengue fever epidemic, a project involving the complete restructuring of the blood transfusion system, from infrastructural strengthening to capacity building, was launched with international guidance.

Based on WHO's advice and technical support, a network of national and regional blood centres has been created to ensure a sufficient and safe blood supply. The feasibility of centralizing donation testing was assessed and wherever this was deemed feasible, donation testing sites were centralized. The implementation of the national blood policy with continuous monitoring and evaluation provided an effective way of translating policy into practice. Dr Bindusara remarked that WHO assisted in providing guidance on construction, training and supervision of the project. The national blood transfusion service was reorganized by improving voluntary blood donation and implementing quality systems.

4.2 Innovative approaches to strengthening blood donor programmes

Presenter: Ms Diane de Coning, Blood Safety Consultant, South Africa

Ms De Coning presented four innovative approaches for strengthening blood donor programmes namely: Establishing Club 25 programmes, setting up blood donor organizations, involving volunteers and converting family replacement to voluntary blood donors. Her presentation focused on the evolution and success of Club 25 programmes across the world, with recruitment strategies for bringing in young and motivated donors. The programme, which originated in 1994 in Zimbabwe, has successfully spread to other countries and continents. She highlighted that each country has its own specific objectives for the youth programmes; however, the overall aims of all Club 25 programmes are related to educating, recruiting and retaining committed, safe young blood donors, as well as raising awareness about blood donation.

The African Club 25 Society, the latest achievement of Club 25 on the African continent, was presented. Ms De Coning emphasized that the African Club 25 initiative was aimed at promoting the establishment of youth blood donor clubs – to educate, motivate, recruit and retain young blood donors (preferably between 16 and 25 years) throughout Africa and also promote a positive lifestyle and behaviour as part of HIV/AIDS prevention and control. She also shared a

success story involving 16 000 volunteers from all over Quebec province in Canada who actively participate in the national blood programme. Their activities range from being involved in the actual donation experience to organizing blood drives and even contributing to the strategic decision-making process at the highest level.

4.3 Maintaining a safe and adequate blood supply in resource-limited settings

Presenter: Dr Justina Ansah, Director, National Blood Transfusion Service, Ghana

Dr Ansah shared her experiences in maintaining a safe and adequate blood supply in Ghana. She explained the importance of a national blood policy, which should meet the country's transfusion requirement in a safe and efficacious manner while making the blood supply accessible and affordable. The policy should clearly define the role of key national stakeholders, preferably through specific legislation.

The evolution and organization of blood transfusion services in Ghana was further elaborated upon, starting from a regional blood transfusion service in the mid-60s to the development of a national blood policy that the government adopted in 2006 for full implementation. The key components of the national blood policy were described. The major constraints and challenges identified were limited awareness of the need for access to safe blood, a shortage of well qualified personnel and a lack of commitment and supervision by health administrators to enforce policies in the regions. Dr Ansah concluded that effective advocacy on the need for safe blood to all national stakeholders and the development of a change strategy is essential for implementation of the national blood policy.

4.4 Reducing unnecessary transfusions: strengthening the clinical interface

Presenter: Dr Yasmin Ayob, Director, National Blood Transfusion Service, Malaysia



Dr Ayob presented various strategies which have been implemented in Malaysia to ensure rational blood usage. She emphasized that reducing unnecessary transfusions was crucial in ensuring patient safety and blood product availability, and reducing costs. She reiterated the need to strengthen the clinical interface between the blood transfusion service and the medical wards, and for the hospital administration to provide the requisite resources and infrastructure. The introduction of and adherence to guidelines on the use of blood and blood products, as well as auditing and intensive consultation by blood bank physicians have had an impact on the number of requests and transfusions ordered. The hospital transfusion committee was given a central role for the effective management of monitoring, audits, corrective actions and training.

The lessons learned in Malaysia include a lack of training of undergraduates and postgraduates in clinical transfusion practice and lack of awareness of guidelines on the use of blood. Dr Ayob concluded by emphasizing the role of continuous medical education and clinical audits, and the need for the commitment of the hospital administration to reduce unnecessary transfusions.

4.5 Vigilance and surveillance systems for transfusion safety

Presenter: Dr Jun Wu, A/Director, Blood Safety Surveillance, Public Health Agency of Canada, Canada

Dr Wu provided the background of the blood safety programme in Canada whose objectives are to protect against current and emerging health threats from the therapeutic use of blood and blood products and cells, tissues and organs. The programme includes regulatory and surveillance components.

The responsibilities of different partners in Canada's blood system were outlined. The partners include two federal government agencies: Health Canada is responsible for regulating the safety, efficacy and quality of therapeutic products used in Canada while the Public Health Agency of Canada is responsible for the prevention of infectious diseases and public health aspects.

The responsibilities of provincial and territorial governments include delivery of the blood supply, where required, and the allocation of funds for blood operations and transfusion activities. The two blood operators are the Canadian Blood Services and Héma-Québec who are responsible for the recruitment of blood donors and the distribution of blood and blood products. These operators are funded by the provinces but regulated by the federal government.

Dr Wu presented the Canadian surveillance system for transfusion safety, which plays a key role in protecting against current and emerging health threats. The implementation of the regulatory and surveillance components has resulted in a high level of blood safety. Dr Wu concluded by highlighting that all levels of governments, manufacturers, health organizations and professionals work collaboratively to provide a safe blood supply for Canadians.

5 Achieving the Health-related Millennium Development Goals through Improved Access to Safe Blood Transfusion

5.1 Safe Blood for Safe Motherhood

Presenter: Ms Daisy Mafubelu, Assistant Director-General, Family and Community Health, WHO-HQ

Ms Mafubelu stressed the importance of safe blood in managing maternity complications. The facts and figures presented made it evident that haemorrhage contributed significantly to maternal death and disability. These could be prevented if the condition was managed in a timely manner. She emphasized that strategies to increase voluntary blood donations should be implemented to ensure that blood products are available and readily accessible at all times.

The conditions requiring blood transfusion during management of pregnancy were listed and included: bleeding during pregnancy and following childbirth; severe anaemia in pregnancy, childbirth or the postpartum period, which might be related to bleeding or poor nutrition; worm infestation; malaria; or other illnesses. Some complications before, during and after birth could also lead to anaemia in infants. Great emphasis was placed on reducing the need for blood transfusion by the prevention, early recognition and timely management of postpartum bleeding.

The following measures required to ensure availability and improve access to safe blood in emergency obstetric facilities were outlined:

- Advocate for the improvement of maternal health;
- Ensure universal access to skilled care
- Apply stringent rules related to blood banking, blood storage, donations, and screening
- Implement strategies to increase voluntary blood donation
- Strengthen the capacity of blood banks to provide blood components, as appropriate
- Increase blood storage facilities in rural health centres.

Ms Mafubelu concluded by highlighting that unsafe blood in pregnancy puts two people at risk – the mother and her unborn infant. The capacity of blood banks in providing appropriate blood products should be strengthened with cost not being a barrier to the individual patient. National guidelines should be developed on the safe and appropriate use of blood products in maternal health, with continuous monitoring and improvement.

5.2 Strategies for achieving the health-related MDGs – the role of blood transfusion

Moderator: Dr Kees Kostermans, Lead Public Health Specialist, Human Development, South Asia Region, World Bank

Dr Kostermans moderated a panel discussion on the health-related MDGs, especially 4, 5 and 6. He highlighted the progress towards meeting the targets: to reduce child mortality rate by two-thirds between 1990 and 2015, to reduce maternal mortality ratio by three-quarters between 1990 and 2015 and to have halted by 2015 and begun to reverse the spread of HIV/AIDS. Panelists included Ms Daisy Mafubelu, WHO; Dr Zafarullah Gill, USA; Dr Jean Emmanuel, Zimbabwe and Dr Erin Maclean, WHO.

The factors hindering the expected progress were identified, including neglected underlying health issues such as malnutrition and anaemia. The role of blood transfusion services as an essential part of other health services was highlighted. Strategies were also identified on how blood transfusion services can strengthen the capacity of other health services to achieve the health-related MDGs.

The global magnitude of anaemia was presented. The main causes listed were iron deficiency and other nutritional deficiencies, infections, genetic factors – sickle cell anaemia and thalassaemia – and blood loss. The prevalence of anaemia throughout the world and its particular concentration in vulnerable populations was highlighted. The need to develop a universal strategy for the prevention of anaemia and to collect data on local situations to effectively address anaemia was reiterated.

6 International Health Security

6.1 Blood safety as an international health security issue

Moderator: Dr Peter Ganz, Director, Health Canada, Biologicals and Radiopharmaceuticals Evaluation Centre, Health Canada

Dr Ganz moderated a panel discussion to identify known and emerging threats to blood safety, to assess whether blood safety is an international health security issue, to find a balance between blood safety and blood supply, and to outline the strategies for risk management. The panelists included Dr Hasan Zaheer, Pakistan; Dr Diana Teo, Singapore; Dr Silvano Wendel, Brazil; Dr Alan Kitchen, UK; and Dr Elizabeth Vinelli, Honduras.

The discussion highlighted that not all new diseases are considered lethal, contagious or capable of spreading internationally, but those that can are global threats to health security. This spread is facilitated by the speed and volume of air travel (2 billion passengers per year), the manner of food production and trade, the misuse of antibiotics, and the mismanagement of the environment. Some experts felt that the term 'localized' outbreak was outdated for, if a disease is lethal, frightening or spreading in an explosive manner, there would always be international repercussions.

The panelists mentioned that changes in the habitation and migration patterns of people have also led to the emergence of new diseases in unprecedented numbers. For example, in the 30 years from 1973 to 2003 when SARS appeared, 39 pathogenic agents capable of causing human disease were newly identified. The names of some pathogens and diseases were well-known: Ebola, HIV/AIDS and the organisms responsible for toxic shock syndrome and Legionnaire's disease. Others included new forms of epidemic cholera and meningitis, Hanta virus and H5N1 avian influenza. Blood systems, as integral parts of health care systems, are no less vulnerable to such threats.

The best protection against emerging and epidemic-prone diseases identified was proactive risk management that can detect an outbreak early and stop it at its source, pre-empting an international threat.

7 Harnessing the Power of Global Health Initiatives

7.1 World Patient Safety Alliance and global patient safety challenges

Presenter: Dr Harold Lopatka, Interim Project Manager, Research, Canadian Patient Safety Institute, Canada

Dr Lopatka introduced the concepts of patient safety and the World Patient Safety Alliance (WPSA). The role of the Canadian Patient Safety Institute was also elaborated upon. Global challenges to patient safety were identified as:

- Raising awareness of the scope of the patient safety problem
- Building political commitment to action
- Solving safety problems for which information on the causes and solutions is already available
- Developing open partnerships with patients
- Identifying new issues and their solutions in a timely manner.

Nine patient safety issues which have been identified so far were presented. These are:

- Look-alike, sound-alike medication names
- Correct patient identification
- Clear communication during patient handovers
- Correct procedure at the correct body site
- Control of concentrated electrolyte solutions
- Accurate medication during transition of care
- Prevention of catheter and tubing misconnections
- Single use of injection devices
- Better hand hygiene to prevent infections.

7.2 World Blood Donor Day: Impetus for change

Presenter: Ms Jan Fordham, Technical Officer, Blood Transfusion Safety, WHO-HQ

Ms Fordham presented the origin of the establishment of World Blood Donor Day, 14 June (WBDD). Since the day was established by the World Health Assembly in 2005, the celebration of WBDD had become a truly world event with at least 120 participating countries in 2006 and expanding. WHO has focused on promoting WBDD by making available a letter of announcement, resource materials and a dedicated website.

The global character was emphasized by holding the official celebration in a different host country every year with a concomitant official press conference. Regional programmes and media events were strongly advocated, with each country organizing activities in its own creative manner.

Interesting aspects were presented on taking World Blood Donor Day forward, such as:

- How could WBDD be used as a platform for wider activities to achieve universal access to safe blood transfusion?
- What support would countries need?
- How could strategic support and additional human and financial resources be mobilized to provide this support?
- How could new national, regional and global partners be brought in and how could countries support each other in WBDD campaigns?
- How could WBDD be used to promote linkages with other health and community programmes?
- What themes in future years would promote these linkages?
- How could the impact of WBDD be monitored and measured?

8 Effective Strategies and Innovative Approaches in Moving Towards Universal Access

Eight parallel working groups were constituted to identify effective strategies and innovative approaches in moving towards universal access to safe blood transfusion. Each working group was chaired by two moderators. Background documents were given to each of these groups to provide a structure for discussion and to define the scope and expected outcomes. The individual working groups were also asked to make recommendations to key stakeholders as an outcome of their discussions.

8.1 Ensuring access to a safe and sufficient blood supply

Moderators: Dr Faten Moftah, Director-General, National Blood Transfusion Service, Egypt, and Dr José Ramiro Cruz, Regional Adviser, Laboratory and Blood Services, PAHO/WHO-AMRO

The objective of the group discussion was to share experiences and lessons learned in establishing sustainable national blood programmes. The discussion addressed issues including meeting current blood requirements; planning to meet projected and future needs; handling blood shortages and special situations, such as emergencies and vaccination campaigns; assessing economic challenges and their impact; and prioritizing blood safety and availability in the face of competing needs. Other areas included setting priorities in strengthening national blood programmes, legislative/regulatory frameworks and blood supply structures; integrating blood transfusion as a cross-cutting service within health care systems; strengthening programme linkages to achieve the health-related MDGs – mechanisms for coordination and collaboration; and raising awareness and advocacy for access to safe blood at all levels of the health care system, including the role of clinicians.

As the outcome of the discussion, the participants identified common challenges and constraints, and the factors contributing to success in ensuring access to a safe and sufficient blood supply. A lack of effective legislation and a lack of planning were regarded as major obstacles for the implementation of strategies for blood safety and availability at national level. The strategies which were effective in overcoming these challenges included the allocation of the necessary resources, systems for reliable data collection and the implementation of quality systems.

Priority actions to strengthen national blood programmes should focus on instituting a National Advisory Board and having qualified personnel working in adequate facilities. Urgent attention needs to be given to logistics concerning the requirements for blood products in remote locations. The education of young doctors and effective campaign strategies need to be implemented to raise awareness.

Recommendations were made to WHO and other key stakeholders to support programmes by advocating the need for support in all relevant areas (infrastructure, personnel, data management, education), measuring the impact of programmes and providing follow up.

8.2 Achieving 100% voluntary blood donation

Moderators: Dr Che Kit Lin, Hospital Chief Executive, Hong Kong Red Cross, Hong Kong and Dr Nabila Metwalli, Regional Adviser, Blood Safety, WHO-EMRO

The objective of this group discussion was to share experiences and lessons learned in establishing voluntary blood donor programmes. The issues addressed included: building a blood donor programme at national and community levels; strengthening interfaces between blood transfusion services and the community; converting family/replacement donors to voluntary donors; communicating effectively with donors; and providing quality donor care.

The key elements for achieving a 100% voluntary non-remunerated blood donor programme include: blood donor recruitment using effective, research-based community education and communication strategies; efficient systems and standardized procedures for donor selection; quality blood collection and donor care; counselling to ensure the health and safety of donors, patients and staff and encourage repeat donations; and donor follow-up and retention strategies to maintain a stable base of safe voluntary blood donors who give blood regularly.

As the outcome of the discussion, the participants identified common challenges and constraints, and the factors contributing to success in establishing voluntary blood donor programmes. Effective strategies for overcoming these challenges require collecting accurate baseline data on the true status of voluntary blood donation globally; establishing a global culture of voluntary blood donation; providing advocacy – STOP paid and family/replacement donation and advocate only voluntary blood donation; and developing positive community attitudes to voluntary blood donation globally. Other measures include conducting research, gathering/analysing/utilizing all available data; training staff on donor recruitment and retention; implementing quality systems in the area of donor health and safety including donor selection criteria, deferrals, donor recognition, quality and vigilance of emerging threats; fostering collaborations and partnerships in a context of global interdependence; developing guidelines for disaster management; and identifying ways to facilitate the implementation of these strategies.

Recommendations were made to WHO and other key stakeholders to provide guidance to countries and support the development of voluntary blood donor programmes.

8.3 Ensuring 100% quality-assured testing of donated blood

Moderators: Dr Alan Kitchen, National Blood Service, UK, and Dr Rajesh Bhatia, Regional Adviser, Blood Safety, WHO-SEARO



Rigorous screening of all donated blood is required to ensure the safety of the blood supply. Unfortunately, not all donations in all countries are screened. The objective of this group discussion was to share experiences and the lessons learned in ensuring the universal screening of all donated blood at all times. The discussion addressed issues such as: challenges and constraints in testing; developing national screening programmes; building quality into testing and the UN indicator on testing donated blood for HIV.

The participants agreed that the problems and challenges in ensuring universal quality assured testing of donated blood for infections include: management commitment, adequate funding, trained leadership and implemented national policies and plans; continuous medical education to ensure that sufficient qualified personnel are available and retained; implemented quality systems with a goal of continuous improvement; appropriate and reliable procurement of quality materials and equipment, including maintenance and servicing; the identification and development of national reference laboratories; and the establishment of national external quality assessment schemes for infectious markers.

The group highlighted that the creation of a national framework with policies, planning, resources and the commitment of government and regulator services was essential to ensure universal blood screening. The whole process needs to be governed by a quality management system and it is necessary for decision makers to realize that quality systems are cost-effective.

8.4 Optimizing blood usage for patient health

Moderators: Dr Lenka Walterova, Head, Clinical Haematology, Liberec, Czech Republic, and Dr Jean-Baptiste Tapko, Regional Adviser, Blood Safety, WHO-AFRO

The objective of this group discussion was to share experiences and lessons learned in ensuring the safe and rational use of blood, thus contributing to patients' health and safety. The discussion addressed issues such as: variations in blood utilization; evidence-based transfusion medicine; the education and training of clinicians, nurses and midwives; novel cellular therapies; and patient safety.



The group felt that variations in blood utilization are a consequence of a lack of guidelines on blood usage or a lack of availability of blood components. Cost concerns and inadequate education of the physicians involved could drive under-use of alternatives. To minimize variations, it is necessary to establish educational programmes, a national transfusion committee and national guidelines on the rational use of blood. An important step is the establishment of functioning hospital transfusion committees with the authority to enforce guideline implementation and conduct audits.

Evidence-based transfusion medicine could be strengthened by the documentation and analysis of institutional blood use. Minimizing transfusion requirements could be pursued by addressing the causes of anaemia and effective pre-admission screening of patients scheduled for elective surgery. The use of alternatives to blood products and good surgical and anaesthetic techniques are also of importance, as are prospective reviews of blood requests and retrospective audits.

8.5 Developing quality systems throughout the transfusion chain

Moderators: Dr Jun Wu, Acting Director, Blood Safety Surveillance, Public Health Agency of Canada, and Dr Alain Beauplet, Director, International Affairs, Établissement Français du Sang, France

The objective of this group discussion was to share experiences and lessons learned in developing quality systems throughout the transfusion chain and haemovigilance systems. The discussion addressed issues such as: documentation systems; quality standards; quality assessment; surveillance and vigilance systems such as haemovigilance; developing a taxonomy; and the feasibility of one uniform coding system and traceability.

It was clear that common challenges and constraints were faced by countries in establishing quality systems at all levels. It was considered necessary to identify stakeholders, including national health authorities, WHO and other developmental partners, and making recommendations to them on providing enhanced support to countries on developing quality systems and vigilance systems.

8.6 Strengthening the workforce

Moderators: Professor Cees Smit Sibinga, Academic Institute of Transfusion Medicine, University of Groningen, the Netherlands, and Dr Jean C. Emmanuel, Transfusion Medicine Specialist, Zimbabwe

The objective of this group discussion was to share experiences and lessons learned in establishing mechanisms for developing human resources and strengthening the workforce to manage the blood transfusion service efficiently. The discussion addressed issues such as: human resource management in blood transfusion services; career and professional development; developing leadership and management skills; working with educational authorities, universities and scientific, medical, nursing and technical institutions and professional bodies; and continuing education.

It was identified that a successful education and training programme, which is necessary to ensure adequate numbers of qualified and trained staff in blood transfusion, is dependent on the existence of a recognized, nationally coordinated blood transfusion service. The group agreed that the blood transfusion service should implement an appropriate salary structure, based on benchmarked salaries from the private sector; create clear lines of command, alignment of responsibility and authority and accurate job descriptions; create appropriate career paths for staff; and provide career development opportunities for key positions.

The experts felt that WHO should support countries in strengthening the workforce by implementing WHO educational and training strategies, forging alliances with key government and private health care partners, developing monitoring and evaluation tools and advocating to Member States about the need for education and training.

8.7 Keeping pace with new developments

Moderators: Dr Amin Hussain Al Amiri, Assistant Undersecretary, Ministry of Health, Blood Transfusion and Research Services, Sharjah, United Arab Emirates, and Dr Valentina Hafner, Regional Adviser, Blood Safety, WHO-EURO

The objective of this group discussion was to share experiences and lessons learned in keeping pace with the latest developments in technology and to identify cost-effective technologies for developing countries. The discussion addressed issues such as: improving access to new and existing technologies; the identification and evaluation of technologies for improving the safety and availability of blood transfusion; making technologies affordable for developing countries; and conducting operational research to study gaps in knowledge and define research priorities in the developing world.

Current barriers to the increased use of new or improved technologies were identified as a lack of political commitment and vision, lack of evidence-based information, limited capacity to conduct needs analyses and/or technology assessment, and challenges in implementation.

For the assessment of global and country needs and of potential new or improved basic technologies for use, it was emphasized that key consideration should be given to the economic (cost constraints, dynamics of purchase community) and technical (infrastructure, service elements, staffing issues) aspects.

It was recognized that WHO could serve as an information clearinghouse, providing methodologies for needs and technology assessment and the results of technology evaluations and validations.

8.8 Building effective partnerships

Moderators: Dr Jay Epstein, Director, Office of Blood Research and Review, Centre for Biologics Evaluation and Research, Food and Drug Administration, USA, and Dr Neelam Dhingra, Coordinator, Blood Transfusion Safety, WHO-HQ

The objective of this group discussion was to explore strategies for building effective partnerships. The discussion addressed issues such as: broadening and strengthening existing partnerships; new approaches to collaboration; harmonizing global efforts for country support; strengthening interfaces between blood providers, users and regulators; working with developmental and funding partners; the optimal use of donor funds at national and regional levels; involving non-health sectors, such as education, youth, sports, labour, tourism, commerce and trade; and linkages with global and regional events.

Achieving the health-related MDGs in the areas of the prevention of HIV and malaria, and improvement in maternal and child health, is critically dependent on the goal of universal availability of safe blood transfusion, cellular therapies, and tissue and organ transplantation. The prospect of achieving this goal will be significantly enhanced through integration with other cross-cutting health and social sector goals.

Collaboration and partnerships need to be developed through the integration of blood transfusion services with other health sectors, within the blood banking community, nationally and multi-nationally, financial donor and funding organizations, and also the public.

The group felt that regional multinational blood banking societies and networks represent an effective forum for nations to leverage their developmental efforts. It was recognized that the engagement of funding partners is essential to the success of transfusion and transplantation initiatives in resource-limited settings. The fragmentation of financial donor programmes conflicts with long-term goals of national public health. Currently there is no system to coordinate and optimize the use of donor funds.

The group felt that the development of a sustainable national blood transfusion service requires broad public engagement and support. Global messages related to blood donation need to be adapted to local conditions and communicated to the public with the help of local community organizations. A positive experience at donor collection sessions is essential to donor retention and maintaining public trust.

9 WHO Global Strategic Plan for Universal Access to Safe Blood Transfusion, 2008–2015

9.1 Framework of WHO global strategic plan: directions, goals, strategies and targets

Presenter: Dr Neelam Dhingra, Coordinator, Blood Transfusion Safety, WHO-HQ

The vision and mission of the WHO Blood Transfusion Safety programme were presented. Achieving universal access to safe blood and reducing unnecessary transfusions were identified as major targets. Strategic directions to be followed for achieving these targets are defined as:

- Building a conducive political, social and economic environment to strengthen national blood programmes
- Responding to country needs to achieve universal access to safe blood transfusion
- Building effective collaboration and partnerships with complementary programmes and partners for coordinated actions in countries
- Strengthening systems for assessment, monitoring and evaluation for better decision-making by policy-makers and planners.

Each strategic direction was further explained with its own goals and strategies. The strategies, which will help WHO in reaching its targets and milestones between 2008 and 2015, are defined as follows:

- Build capacity in countries to formulate and implement national blood policies and plans
- Achieve 100% voluntary non-remunerated donation of whole blood and labile blood products
- Ensure 100% quality-assured testing of donated blood
- Process blood into components, based on the needs of the health care system
- Establish haemovigilance systems for improved blood safety
- Implement national guidelines on the clinical use of blood
- Have > 75% of hospitals with an operational transfusion committee.

10 Recommendations



Following the deliberations of the global consultation, the participants identified major stakeholders in ensuring universal access to safe blood transfusion. These include WHO, national health authorities and national/regional blood transfusion services. Key recommendations which emerged from the discussions were addressed to these stakeholders.

10.1 Recommendations to WHO

Ensuring access to a safe and sufficient blood supply

For improving access to a safe and sufficient blood supply, WHO should:

- 1 Promote and facilitate the effective implementation of WHO strategies for blood safety and availability at global, regional and national levels through advocacy and technical support.
- 2 Conduct high level delegations to priority countries to drive reforms in blood supply systems.
- 3 Develop, update and provide evidence-based WHO strategies, norms, standards, recommendations, guidelines, tools and materials on safe blood transfusion.
- 4 Advocate and demonstrate the need for infrastructural development for the effective implementation of national blood programmes, including buildings, staff, data management, education and training, fixed assets and consumables.
- 5 Undertake country assessments:
 - For situation analysis
 - To evaluate the impact of blood safety strategies being implemented
 - To identify priority areas requiring support.
- 6 Provide policy guidance and technical support on different models for blood supply structures.
- 7 Provide technical guidance on the selection, acquisition and management of equipment and consumables for the operations of the blood transfusion services.
- 8 Expand the WHO prequalification programme and bulk procurement scheme for HIV, hepatitis B and hepatitis C test kits to include blood bags and reagents for blood group serology.
- 9 Advocate, provide guidelines and technical support for developing effective procurement and supply chain systems for essential equipment and consumables.

Achieving 100% voluntary blood donation

- 10 Strengthen the capacity within WHO to provide guidance and technical support to Member States on all aspects of the development of voluntary blood donor programmes, including quality systems to promote optimal donor care.
- 11 Provide advocacy and policy guidance to Member States on the role of legislation in promoting 100% voluntary blood donation.
- 12 Provide tools and technical support in the development of systems for assessing donor suitability, including national donor selection criteria, prevention of iron storage depletion and monitoring of adverse events and donor reactions.
- 13 Provide information and guidance on developing systems for sufficient and secured supplies of safe plasma fractionated products, based on voluntary non-remunerated blood and plasma donations.

Ensuring 100% quality-assured testing of donated blood

- 14 Provide guidance and training for the development of national screening programmes for transfusion-transmissible infections (TTIs).
- 15 Support the development of national reference laboratories and mechanisms for evaluation of TTI test kits and blood group serology reagents.
- 16 Facilitate the provision of external quality assessment for screening for TTIs and blood group serology and support the establishment of national external quality assessment schemes.

Optimizing blood usage for patient health

- 17 Provide advocacy and technical support for the development and implementation of national guidelines on clinical transfusion.
- 18 Advocate and provide policy guidance on the establishment of national and hospital transfusion committees.
- 19 Advocate, train and provide technical support for national blood conservation strategies to reduce unnecessary transfusions.
- 20 Provide advocacy, tools and technical support for:
 - Development of national systems for quality at the clinical interface
 - Assessment and monitoring of blood utilization patterns.

Developing quality systems throughout the transfusion chain

- 21 Build national and regional capacity for the implementation of quality systems in blood transfusion services, including the development of national standards, documentation, training and assessment.
- 22 Develop guidelines and tools on risk assessment and risk management.
- 23 Strengthen global, regional and national monitoring processes and outcome indicators on blood safety and availability, and measure progress.
- 24 Encourage national health authorities to establish or enhance systems for the documentation of the use and bi-directional traceability of all blood components and blood products.
- 25 Provide guidelines, tools and technical support for the establishment of national haemovigilance systems.
- 26 Foster and support the creation of a Global Haemovigilance, Surveillance and Alert Network.

Strengthening the workforce

- 27 Implement the educational and training strategies included in the WHO Blood Transfusion Safety Strategy.
- 28 Develop tools for the follow-up, monitoring and evaluation of the impact of WHO training programmes.

- 29 Develop a management skills training programme to support the leadership in establishing efficient, sustainable blood transfusion services.
- 30 Advocate to national education and health authorities and provide technical support for the incorporation of transfusion medicine and science in the undergraduate and postgraduate curricula in schools of medicine, nursing, midwifery and medical laboratory technology and in practical internships.

Keeping pace with new developments

- 31 Develop a tool to assist countries in the collection and analysis of information on technology needs, including safety, integration, sustainability, affordability and culture of ownership.
- 32 Demonstrate to the industry that a large potential market exists for 'appropriate technologies' and educate manufacturers to leverage private sector interest in good corporate citizenship to overcome reluctance to invest in research and development in 'basic' technology.

Building effective partnerships

- 33 Strengthen coordination and integration between programmes with cross-cutting relevance to the availability of safe blood transfusion, cellular therapies, and tissue and organ transplantation.
- 34 Foster collaboration and strengthen the Global Collaboration for Blood Safety.
- 35 Support, promote and facilitate societies and networks in blood banking, transplantation and other related fields.
- 36 Promote peer engagements between developing and developed countries (e.g. twinning) based on common interests within regions and across regions. Examples of successes achieved should be publicized.
- 37 Utilize WHO Collaborating Centres to enhance the effectiveness of regional networks.
- 38 Provide guidance to countries on coordinating and optimizing the use of donor funds in the health sector.

10.2 Recommendations to national health authorities

For improving access to a safe and sufficient blood supply, national health authorities should:

- 1 Establish a national blood programme with overall responsibility for developing a national blood policy and legislative framework, and for the planning, implementation and monitoring of all activities related to blood transfusion throughout the country.
- 2 Identify and involve all relevant government departments (health, education, budget and finance authorities) and other stakeholders (nongovernmental organizations, professional associations and patient associations) in the national blood programme.
- 3 Work closely with international agencies, including WHO and the International Federation of Red Cross and Red Crescent Societies to utilize their programmes, guidelines, tools and training opportunities and learn from the experience of other countries.

- 4 Integrate blood transfusion with complementary health care programmes, including maternal and child health, HIV/AIDS, malaria and anaemia, bleeding disorders and haemoglobinopathies.
- 5 Incorporate blood safety in patient safety initiatives at national level.
- 6 Work with other relevant national authorities, particularly the ministry of education, to incorporate blood transfusion in the undergraduate and postgraduate curricula of schools of medicine, nursing, midwifery and medical laboratory technology and become part of practical internships.
- 7 Oblige hospital administrators to pursue blood conservation programmes, including the use of alternatives, with regular outputs to be reviewed by the National Transfusion Committee.
- 8 Implement a national haemovigilance system, including hospital transfusion committees in all hospitals in which transfusion is performed, and establish systems for monitoring and improving transfusion safety as part of an overall quality system for the entire transfusion chain.

10.3 Recommendations to national/regional blood transfusion services

For improving access to a safe and sufficient blood supply, national/regional blood transfusion services should:

- 1 Develop a training plan and programme for all staff in blood transfusion services and hospital services.
- 2 Educate clinicians and other personnel involved in the transfusion process through seminars and workshops, emphasizing the need for blood conservation.
- 3 Establish haemovigilance schemes at national and regional levels.
- 4 To promote staff retention:
 - Implement an appropriate salary structure, based on benchmarked salaries from the private sector
 - Create clear lines of command (alignment of responsibility and authority) and accurate job descriptions
 - Create appropriate career paths for staff within the national blood transfusion service.

11 Conclusions

While the demand for blood is growing in the developed world with longevity of life and increasingly sophisticated clinical procedures, national blood supplies are rarely sufficient to meet existing requirements in developing countries. Evidence-based strategies for blood safety and availability have been successfully implemented in most developed countries and some transitional and developing nations. However, despite the proven effectiveness of these strategies, many countries are making slow progress towards their implementation.

The challenges and constraints in implementing these strategies include: lack of government support; absence of national blood policies/plans, legislative frameworks and effective regulation; the fragmentation of blood transfusion services; a lack of clarity of roles and responsibilities among multiple national stakeholders; poor institutional coordination; and a lack of integration of blood programmes within national healthcare systems.

There is an urgent need to address the challenges in ensuring access to a safe and sufficient blood supply. This can be achieved by 100% voluntary blood donation, 100% quality-assured testing of donated blood and optimizing blood usage for patient health. Additionally, developing quality systems in the transfusion chain, strengthening the workforce, keeping pace with new developments and building effective partnerships will also contribute to blood safety.

The WHO Blood Transfusion Safety programme is committed to supporting the global community, in particular, the developing world, to ensure that safe blood is available for all patients needing transfusion in a timely manner, thus contributing to patients' health, safety and survival. The strategies and recommendations from this report are now incorporated in the WHO Global Strategic Plan on Universal Access to Safe Blood Transfusion 2008–2015, thereby defining key strategic directions for achieving universal access to safe blood transfusion.



**World Health
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