

**English only**  
**Distr.: Limited**

**Report of the Seventh General Meeting of the**

**Global  
Collaboration  
for  
Blood  
Safety**

**Cairo, 14 – 17 November 2006**

**Blood Transfusion Safety  
GCBS Secretariat  
Department of Essential Health Technologies  
World Health Organization, Geneva**

## **EXECUTIVE SUMMARY**

### **Introduction**

The Global Collaboration for Blood Safety (GCBS), a WHO-convened forum, is a voluntary partnership of internationally recognized organizations, institutions, associations, agencies and experts from developing and developed countries that are concerned with the safety of blood and blood products. The GCBS was established in response to the declaration of the Paris AIDS Summit (1994) which recognized that all governments have a strong interest in global blood safety and identified the need to strengthen international collaboration for blood safety and foster cooperative partnerships to ensure blood safety in all countries. In 1995, in resolution WHA48.27, the Forty-eighth World Health Assembly welcomed the Paris AIDS Summit declaration and invited governments that had not already signed the declaration to do so. The GCBS was subsequently established with the mission to promote the harmonization of efforts and avoid the duplication of activities by identifying problems, sharing expertise, seeking solutions and working towards the common goal of global blood safety as equal collaborative partners.

The 7<sup>th</sup> plenary meeting of GCBS was held at the Eastern Mediterranean Office of the WHO in Cairo, Egypt on 14-17 November 2006, convened and organized jointly by the Eastern Mediterranean Regional Office of WHO and the Blood Transfusion Safety Team, Department of Essential Health Technologies, WHO Headquarters in Geneva. It was attended by more than 60 participants, including international organizations, WHO Collaborating Centres, individual experts, observers, WHO Regional Adviser for Blood Safety and members of the WHO Blood Transfusion Safety team. The meeting was chaired by Dr Jay Epstein with Dr Silvano Wendel as Vice Chair. Dr Jerry Holmberg and Dr Tom Krusius served as Rapporteurs. The agenda and programme of work were reviewed and adopted by the plenary group.

### **SUMMARY OF THE MEETING**

**New participating organization.** A report was tabled by the Algeria National Blood Agency, on their international activities in blood safety, and the organization was unanimously elected as a new member of the GCBS.

**Global efforts** and progress in blood safety were reviewed and discussed. Presentations were made on WHO global efforts, PEPFAR activities, establishing a transfusion medicine institute, nucleic acid testing, disaster and pandemic preparedness. Short reports were given by the Africa Society for Blood Transfusion, the Arab Association of Blood Transfusion Services, the Iranian Blood Transfusion Organization, the International Federation of the Red Cross, the International Plasma Fractionation Association, the International Society of Blood Transfusion, the WHO Collaborating Centre, Tunisia and the UK National Blood Service. Additional written reports were tabled.

**Challenges in optimizing the transfusion chain** were discussed in three break-out sessions, including:

- selecting safe blood donors;
- providing required products to meet patient needs; and
- transfusion practices at the bedside.

A fourth break-out session was organized to discuss the structure and goals of the GCBS as a WHO-hosted network. This included a telephone link with the WHO legal department in Geneva.

## **Recommendations and Next Steps**

### **Donor Health and Safety (Donor Selection Criteria)**

1. GCBS participants established a Task Force to collaborate with WHO in the development and finalization of a guideline on blood donor selection, with particular attention to following recommendations:
  - a. Development of a tool to compare adverse events and reactions associated with blood donation under different criteria; and support collection of this data to improve the evidence base of donor selection
  - b. Use of indicators of iron balance as part of donor suitability assessment.
  - c. Adoption of the definitions of EC/CoE on types of donors for epidemiological purposes with explanatory notes.
  - d. Consideration of ethical issues in donor counselling and notification related to determination of donor suitability, including adoption of the ISBT Code of Ethics 2005.
  - e. Assessment of the medical and legal basis for establishing the minimum and maximum donor age.
  - f. Development of a tool to determine whether different health related donor selection criteria as applied in different countries or settings affect rates of adverse reactions in donors.
  - g. Updating all donor selection criteria based on scientific and medical evidence as it becomes available, considering both donor and patient safety
  - h. Development and evaluation of donor questionnaires for assessing donor suitability
2. The GCBS participants were encouraged to advocate to national authorities to consider both availability and safety issues while developing/ revising donor selection criteria.
3. The GCBS participants were encouraged to advocate to National Authorities the establishment of donor data bases, preferably electronic, to encourage donor retention, including an effective deferral registry as a tool to support the donor selection system and donor and patient monitoring.

## **Transfusion Practices at the Bedside (Patient Safety)**

Although errors affecting transfusion safety can occur at any point in the transfusion chain, it is recognized that the major cause of wrong blood transfusion is due to errors at the bedside. Based on this observation:

4. GCBS participants established a working group to collaborate with WHO in developing candidate guidance document on monitoring and improving transfusion recipient safety (particularly wrong blood transfusions) through haemovigilance systems.
5. GCBS participants were encouraged to sensitize countries on the need to implement a haemovigilance system, including establishment of Hospital Transfusion Committees in all hospitals practicing transfusions as an essential element, and to advocate that a system of monitoring and improving transfusion safety should be part of an overall quality system for the entire transfusion chain.
6. GCBS participants were encouraged to advocate incorporation of blood safety in patient safety initiatives at national level.
7. GCBS participants supported WHO's Patient Safety Initiative in advocating haemovigilance optimally as an integral part of hospital quality system.

## **Structure and Goals of GCBS as a WHO-Hosted Network**

8. GCBS participants adopted the following strategic plan:
  - a. *Vision*  
GCBS establishes effective collaborations for global blood safety and availability
  - b. *Goals*
    - i. Develop strong partnerships with WHO for specific long term projects under MoU's consistent with WHO work plans
    - ii. Improve GCBS productivity through focused efforts
    - iii. Improve visibility and recognition of GCBS as a key forum for innovative thinking and co-operative networking
    - iv. Establish a sustainable funding mechanism for GCBS
  - c. *Strategic actions:*
    - i. Identify a small number of projects for long term partnership.
    - ii. Ask for proposals in advance of the next plenary

- iii. Focus annual meetings on a limited set of issues addressing current concerns of both developing and developed countries, and regard meeting outputs as work products
  - iv. Pursue publication of GCBS work products in widely read journals in the transfusion field.
  - v. Encourage member participants to acknowledge the role of GCBS in influencing their own proceedings.
  - vi. Develop a business plan for presentation to potential funding sponsors.
9. GCBS participants tasked the planning group to develop a budget based work plan for GCBS activities on an annual basis for adoption by GCBS.
10. Subject to the use of generic disclaimer statement to be developed in cooperation with WHO Legal Department, GCBS participants were encouraged to share factual information of activities of GCBS at appropriate national and international meetings.
11. GCBS participants tasked the planning group to work with WHO Secretariat and WHO Legal Department to identify and resolve outstanding legal issues concerning:
- o Development of a generic disclaimer statement, and;
  - o Establishment of suitable fund raising mechanisms
12. GCBS participants adopted incorporation of the following statement into the current terms of reference:

“The WHO should provide the Secretariat for GCBS with semi-annual certified financial reports. These reports will be certified by the Office of the Chief Accountant of WHO. This is subject to any confidentiality requirements from a Donor and where these exist, the report would be adjusted appropriately.”

## INTRODUCTION

The Global Collaboration for Blood Safety (GCBS), a WHO-convened forum, is a voluntary partnership of internationally recognized organizations, institutions, associations, agencies and experts from developing and developed countries that are concerned with the safety of blood and blood products. The GCBS was established in response to the declaration of the Paris AIDS Summit (1994) which recognized that all governments have a strong interest in global blood safety and identified the need to strengthen international collaboration for blood safety and foster cooperative partnerships to ensure blood safety in all countries. In 1995, in resolution WHA48.27, the Forty-eighth World Health Assembly welcomed the Paris AIDS Summit declaration and invited governments that had not already signed the declaration to do so. The GCBS was subsequently established with the mission to promote the harmonization of efforts and avoid the duplication of activities by identifying problems, sharing expertise, seeking solutions and working towards the common goal of global blood safety as equal collaborative partners.

Plenary meetings of the GCBS have been held annually since 2000. The seventh plenary meeting was held at the Eastern Mediterranean Regional Office (EMRO) of WHO in Cairo, Egypt on 14-17 November 2006. The meeting was convened and organized jointly by EMRO and the Blood Transfusion Safety Team, Department of Essential Health Technologies within the Health Technology and Pharmaceuticals cluster of the World Health Organization (WHO). It was attended by more than 60 participants and observers, including international organizations, WHO Collaborating Centres, individual experts, the WHO Regional Adviser for Blood Safety, EMRO and members of the Blood Transfusion Safety team, WHO/Geneva (see Annex 3 for a list of participants). The meeting was chaired by Dr Jay Epstein and Dr Silvano Wendel was the Vice Chairperson.

The opening presentation was given by Dr Mohamed H. Khayat, Senior Policy Adviser of the WHO EMRO. He welcomed participants from different regions of the world, on behalf of the Regional Director, Dr Hussein Gezairy, who was unable to attend. The importance of blood services and blood transfusions to the health of the population, especially the health of pregnant women, was stressed. Participants were encouraged to develop blood services, try to identify measures and technologies for blood safety and identify organizations to fund the work in developing countries.

The Chairperson, Dr Jay Epstein, opened the meeting and greeted all participants, thanking Dr Nabila Metwalli for the local arrangements and Dr Neelam Dhingra for organizing the meeting. Dr Epstein recognized that this was the first time that the GCBS meeting had been held in a WHO Regional Office meeting and the second time a meeting had been held in the Eastern Mediterranean region of WHO. He commented that GCBS is a special meeting because it is the only blood forum to bring all the voices into one tent. It is a forum to hear every perspective that is relevant and the ability to marshal vision and resources to provide what is needed in the world. Collaboration of blood bank experts makes it possible to build on many experiences over the years. He challenged all participants to meet the mission of GCBS; that is, to build the partnerships that are necessary for global collaboration in the interest of blood safety.

Participants introduced themselves and Dr Jerry Holmberg and Dr Tom Krusius kindly agreed to be the rapporteurs.

Dr Nabila Metwalli greeted participants and welcomed them all to Cairo. She introduced Dr Abdel Aziz, Senior Adviser, EMRO and Dr Saleh Belgacem Sabri, to whom she reports. She also introduced the Blood Transfusion Safety team from Geneva.

Dr Neelam Dhingra, Coordinator, Blood Transfusion Safety, WHO, welcomed the participants on behalf of WHO HQ and brought the greetings of Dr Steffen Groth, Director, Department of Essential Health Technologies, who was unfortunately not able to attend. Dr Dhingra also thanked Dr Metwalli and her staff for their part in organizing the meeting and thanked Dr Faten Mofteh, Medical Director of the Egyptian National Blood Transfusion Service, for providing the opportunity for participants to visit blood centres in Cairo on the last day. Prof Anthon Heyns, representing the Africa Society for Blood Transfusion, was thanked for his role in documenting the results of the SWOT analysis of the Planning Group of GCBS. The strengths identified were the ability to bring together a unique mix of experts in the field, make GCBS an effective "think tank", initiate several valuable work products, develop action plans, expand the list of organizations wishing to join the GCBS, bring WHO blood safety representatives together, provide a forum for networking and cultural exchange; important for global understanding of issues, as well as the creation of international influence, so that governments would accept GCBS information as best practice.

Dr Dhingra also expressed her appreciation for the effective leadership and chairmanship of Dr Jay Epstein who had guided the GCBS in making this progress. WHO HQ was very proud and pleased to support the GCBS and also in the future to see results at country level.

Prof Smit Sibinga drew the attention of the GCBS to the life of the recently deceased Klaus Hogman. He was a giant in the field of transfusion medicine, and especially noted for his work on additive solutions and separation of blood into components. He received the AABB Karl Landsteiner award in 1993 and the President Award of ISBT at the 2006 meeting in Cape Town. A moment of silence was given for this leader in transfusion medicine.

### **Adoption of agenda, objectives of meeting and programme of work**

The objectives of the meeting, the agenda (annex 1) and programme of work (annex 2) unanimously endorsed by the participants. Drs Tom Krusius and Jerry Holmberg were elected to function as rapporteurs.

### **OBJECTIVES**

The seventh GCBS meeting was convened with following objectives:

- to review GCBS activities since the last general meeting and the planning group meeting;
- to review global efforts, progress and collaborative initiatives in blood safety from new and existing GCBS participants;
- to identify challenges and propose solutions in optimizing the transfusion chain, with regard to selecting safe donors, providing required products to meet patient needs, and transfusion practices at the bedside;
- to develop recommendations to participants to implement further actions for blood safety.

## **REVIEW OF REPORT OF 6th GCBS GENERAL MEETING**

Dr Epstein reviewed the report on the 6<sup>th</sup> General Meeting of the GCBS and thanked the rapporteurs of that meeting. No modifications or amendments to the report were proposed by participants. The report was approved unanimously.

### **THEME 1: INTRODUCTION AND ELECTION OF NEW PARTICIPATING ORGANIZATION**

#### **Algeria National Blood Agency**

The Algeria National Blood Agency had requested to be accepted as a new participant of GCBS. A report on their international activities, especially in Arabic and African countries, was read by Dr Silvano Wendel on behalf of Prof Kezzal who was not able to attend the meeting. Dr Jay Epstein then read the requirements for acceptance of new members into the GCBS. The GCBS Planning group had already discussed the application and decided that the Algeria National Blood Agency met the standards of GCBS. Mrs Claudine Hossenlopp gave additional information on activities of the Algeria National Blood Agency in support of the organization. Prof Smit Sibinga nominated the Algeria Blood Agency and the convened participants unanimously approved them as a new member of GCBS.

### **THEME 2: ELECTORAL PROCESS**

Mrs Beryl Armstrong described the election process of GCBS for a new Chairperson and Vice Chairperson for the 2007-2008 meetings. A ballot paper was distributed to participants for consideration of the upcoming election. There were six candidates submitted for the two positions:

- Prof Jean-Pierre Allain
- Dr Roger Dodd
- Prof Anthon Heyns
- Dr Che Kit Lin
- Dr Paul Strenger
- Dr Silvano Wendel

Elections took place later. The outcome was that Prof Jean-Pierre Allain received the highest number of votes followed by Dr Silvano Wendel. Prof Allain declined the chair and offered it to Dr Wendel as he would prefer to be Vice Chairperson. This offer was unanimously agreed by the participants and Dr Silvano Wendel then accepted the position of Chairperson, with Prof Allain taking the vice chair.

### **THEME 3: REVIEW OF GCBS ACTIVITIES: PROGRESS AND ACHIEVEMENTS**

Dr Epstein reviewed the recommendations from previous GCBS general meetings and highlighted specific achievements. He indicated many important accomplishments including published meeting reports, recommendations, guidance documents, fact sheets and Aides-Mémoire, which have supported global blood safety and promoted the visibility of the GCBS. Some of the documents have been adopted by WHO, others are still under preparation. The accomplishments indicate that GCBS members can work together and achieve significant progress.

#### **Review of 2005 GCBS - conclusions and recommendations**

Dr Epstein gave a summary of the 6<sup>th</sup> General Meeting of the GCBS held in 2005 in Bangkok. He warmly thanked Dr Rachanee O'Charoen, Director, National Blood Centre, Thai Red Cross Society, for organizing this meeting. Recommendations are provided in the report of the 6<sup>th</sup> General Meeting of GCBS (see Annex 4 for the Report of the Sixth General Meeting of the Global Collaboration for Blood Safety).

Dr Epstein reviewed the work of the task groups established at the Bangkok Meeting:

- Task Group for Sustainable Financing of National Blood Programmes in Developing Countries
- Task Group for Disaster Preparedness for Blood Systems
- Task Group for Blood and Plasma Donor Iron Balance
- Task Group on the Terms of Reference for the GCBS and the Secretariat function

Dr Epstein also reminded participants that it had been decided in Thailand that the planning committee develop a process of identifying a unified focus for each year. This year's focus of the break-out sessions is "Optimizing the Transfusion Chain".

### **Discussion on Specific Recommendations from 6<sup>th</sup> GCBS Meeting**

- **WHO Essential Medicine Website:**

Reintroduction of immunoglobulin on the WHO Essential Medicines List was discussed. The International Union of Immunological Societies (IUIS) and the International Patient Organization for Primary Immune deficiencies (IPOPI) had submitted an application to address this issue. GCBS collaborating organizations were encouraged to submit their support for the IUIS and IPOPI submission. A decision is to be made March 2007. Immunoglobulin has now been reintroduced to the WHO Essential Medicines List.

- **Haemoglobin Colour Scale:**

Donor screening with a cut off of 12.5 g/dL presents a problem as cut-off levels are set at 12.0, 14.0 and 16.0 g/dL. Although the colour scale does have several uses, follow-up studies need to be done in respect of its intended purpose.

- **Coagulation factors:**

Progress was described in supplying coagulation factors to developing countries. Some IPFA members have offered to fractionate surplus cryoprecipitate and plasma. This project is progressing slowly and they are handling the legal issues. Quality standards are also very important. Participants were encouraged to advocate to stakeholders and regulators to donate surplus cryoprecipitate and plasma to the programme. WHO Guideline for plasma fractionation have been developed.

- **Advocacy model for sustainable financing of National Blood Programmes:**

This is the key component to supporting National Blood Services. Governments should develop and invest in a sustainable blood service. The work done by PEPFAR and WHO was briefly mentioned.

- **Iron balance:**

Email correspondence was used successfully for this subject. GDBS members could interact and express their opinions. A task group should be established on haemoglobin to investigate:

- establishment of regional and appropriate Hb standards to include plasma donation;
  - iron supplementation; and
  - diagnostic methods.
- **Expansion of surveillance on adverse transfusion events:**  
International surveillance of adverse events in donors could improve donor safety. AABB, ISBT and European organizations are working together on haemovigilance.
  - **Transfusion Practice:**  
Clinical studies to verify scientific basis for current transfusion practices should be undertaken, but costs are high; developed countries should therefore support. Disaster preparedness has taken on prominence due to the pandemic flu threat, with national and regional efforts being made. Collection and sharing of data on feasibility of control of pathogens in blood components and the testing of blood including rapid tests was discussed. Participants were encouraged to expand international collaboration on surveillance for adverse events related to donation as a basis whereby donor safety might be improved. Participants were also encouraged to promote and support clinical studies to clarify the scientific basis for current transfusion practices and alternatives to transfusion, and to facilitate the dissemination of such information. It was also recommended that participating organizations promote the collection and sharing of data on feasibility and utility in various settings for strategies to:
    - control bacterial contamination in blood components; and
    - test for malaria and other transfusion transmissible infections including appropriate use of EIA and rapid tests.

**NOTE:** There was a suggestion by Prof Kamel Boukef to appoint a coordinator to measure ongoing progress for all agreed tasks within a work group, and that the work group should submit a short report for each recommendation. Dr Epstein proposed that the lead organizations should prepare reports on the progress of the recommendations. Dr Dhingra commented that the meeting should select a responsible focal point for each recommendation.

#### **Report from working group on Needs Assessment Model**

Dr Ana del Pozo reported on behalf Dr Elizabeth Vinelli. The Needs Assessment Model was developed by Dr Brian McClelland and carried out in Honduras and Argentina with the aid of the Pan American Health Organization (PAHO). A pilot study was done in Buenos Aires. Experts frequently using blood were invited to participate. Taking into account prevalence of diseases and proportion of patients needing blood it was calculated that 614,000 units of blood are needed in the study area. At present 10,000 units of blood are being used. Calculations were, however, considered unreliable and a second survey was done. The observed number of transfusions was clearly higher than estimated by specialists.

#### **Review of different mechanisms of collaboration and partnerships within WHO (via video link)**

Dr Epstein summarized the strategic planning done by the Planning Group. Discussion points to bring to the attention of the meeting were:

- Relationship with WHO as secretariat and participant in GCBS with the key point being governance. Who makes decisions since GCBS is not a legal entity?

- Who is responsible for work products of GCBS and how can products be used? Should work products be "stand alone" or should they become WHO documents?
- Previously, the governments of France and Japan had supported funding of GCBS. Who is now expected to do fundraising and who makes decisions on expenditure since GCBS is not a legal entity?

Dr Epstein discussed the SWOT analysis carried out by the Planning Group and read the strategic plan, vision and goals of GCBS. He also addressed several questions to WHO:

- What is the most appropriate structure and function GCBS?
- How can GCBS stabilize its forum as a partnership?
- What do we expect our work products to be and how do we communicate this to our donors? This is an issue of accountability of dispersed money and results to financial donors.
- What is the focus in the goals and objectives we are trying to accomplish?
- Who should be represented in GCBS and how does GCBS manage representation so that it benefits the GCBS functioning body?

Mr Chris Zielinski (WHO HQ) gave a presentation on the role of WHO role in partnerships.

Questions about partnerships:

- What are the risks?
- What are country level implications?
- Who determines if the name, logo and image of WHO can be used?
- How does a partnership monitor and evaluate effectiveness?
- How is "conflict of interest" monitored and managed?
- How are funds monitored to avoid problems of diversion of funds?

### **Summary of discussion**

Dr Emmanuel gave a short overview of how GCBS was static from 1994 to 2000 and since 2000 has grown exponentially. He asked if there are partnerships which are similar to GCBS from which an example could be made. Although Mr Zielinski could not give a comparative example, he stated there are partnerships that focus on discussion, but one like GCBS is relatively rare. Ms Donna Catliota explained that partnerships and procedures for partnerships have been evolving during the last years. She referred to the Typology chart distributed to the participants. According to Ms Catliota, GCBS is a network partnership: loosely structured, having exchange of information, coordination of strategies or partner activities and long term activities. A network has a limited secretariat, may have subcommittees and working groups. The legal status is a semi-formal group of organizations that coordinate activities in a given area, not a legal entity. There are no definitive rules for the different types of partnerships but the role of commercial organizations has to be defined. Since GCBS is not a legal entity, funds have to be channelled through WHO.

Dr Epstein concluded that GCBS would like to be classified as a network in the future.

## **THEME 4: GLOBAL EFFORTS AND PROGRESS IN BLOOD SAFETY**

### **Highlights of WHO global efforts and progress on blood safety**

The vision of the WHO Blood Safety Programme is to have universal access to safe blood. Implementation strategies include policy development and capacity building. Within UN family of organizations blood safety is only developed in WHO. The following are tools for decision making:

- WHO Global Database on Blood safety 2001-2002;
- GCBS questionnaire 2004;
- tool for assessing blood safety status within countries; and
- estimating requirement of blood/blood products within the country

Dr Dhingra discussed various activities being implemented through the WHO blood safety programme.

### **PEPFAR update: key issues - indicators of progress, strategies for financial sustainability**

Dr Marum explained that a meeting was convened in May 2006 to develop key indicators to cover all areas of blood service delivery. More funds would be needed if countries other than those in Africa are to be assisted. This may happen with the new session of Congress.

### **Establishing an African Institute for Education and Training in Blood Transfusion**

Countries receiving funds and support need to move forward. This may be done by taking existing expertise and providing additional training such as on legislation and regulation, leadership and organization management, funding and role of funding organizations. The way forward is establishment of a Transfusion Medicine Institute.

### **Role of Nucleic Acid Testing in Blood Safety**

In developed countries the cost efficiency of NAT testing of blood donors is very low, as compared in developing countries where the cost efficiency could be high. However lack of resources, lack of trained staff and lack of methods which can be implemented hinder the advancement of improved testing. In many developing countries both hepatitis and HIV are common. Therefore multiplex assays are cost efficient. There are definitely pros and cons of introducing NAT in developing countries.

### **Disaster / pandemic preparedness in Singapore**

Lessons learned from disasters were described, including the fact that education and communication with the public in emergencies was essential. Emergency blood collection teams are needed to supplement staff and contingency planning is needed to collect large amounts of blood. SARS induced a decrease of 60% to the blood supply in Singapore. Flu pandemic exercise has been held. Training of testing and processing call back teams is also important. Otherwise blood units are lost unnecessarily due to errors in testing and processing.

### **International Blood Emergency Planning Action Group: IBEPAG**

IBEPAG and EBA EPAG are global networks which share practises, exchange of blood components in emergencies and shared exercises. The concept of the Alliance of Blood Organizations (ABO) is to promote blood safety and efficient of operation through terms of reference and working subgroups.

## **Reports of Major Recent International Meetings in Blood Safety**

- Africa Society for Blood Transfusion: Website and e-learning: Prof Anthon Heyns
- Arab Association of Blood Transfusion Services: Dr Ibraheem Alomar
- Report from IBTO: Dr Hasan Aboulghasemi
- IFRC: Tsunami Relief Blood Programme: Dr Tom Krusius
- IPFA: Summary of international meetings and activities: Mr Theo Evers
- ISBT: Working Party on Transfusion Transmitted Infectious Diseases: Dr Silvano Wendel
- Tunisia WHO CC: Activities of the NBTC, Tunis: Prof Kamel Boukef
- UK National Blood Service: An outline strategy: Dr Patrick Sullivan

## **THEME 5: CHALLENGES IN OPTIMIZING THE TRANSFUSION CHAIN**

### **A: SELECTING SAFE DONORS: Moderator: Dr Jean Emmanuel**

#### **Guidelines on blood donor selection: Dr Virge James**

WHO has identified the need for evidence based donor selection guidelines. Current donor selection guidelines may lead to inappropriate deferral or acceptance of donors. The key messages are knowledge of local epidemiological situations and education and training. The objective is not to harm the donor or the recipient. However, availability of donors/blood has to be taken in consideration, to avoid unnecessary deferrals and unsafe donations. The donor selection guidelines being prepared are suitable for developing countries, educational, user friendly, include frequently asked questions, address main issues, and a framework for local decision making. It is the responsibility of the blood transfusion service to provide health screening and care. We need to pay attention to what matters and collect local data. This will help develop clear guidance for the local population. In developing the local guidance one must also take into account world wide criteria.

#### **Definition of voluntary non-remunerated and regular blood donor: Dr Mohamed Nabeel**

A global definition is needed - several are presently available. VNRBD includes three words: voluntary, non-remunerated and blood donor. The meaning of each word was discussed.

#### **Epidemiological tools and how they can be used to select safe donors. Utilizing epidemiological insight: Dr Cees van der Poel**

Epidemiological techniques and risk modelling can be important tools for assessing blood safety. The difference in risk of paid and non-paid plasma/blood donors has repeatedly been shown to be significant and has not changed over time.

In addition there are differences in epidemiology in different regions and also differences between countries within one region. EMEA and EU therefore require risk assessments of the donor populations. This can include statistical process control on the infection rates in donors. In case of epidemiological elevations, root cause analysis is indicated. To assess risk factors for infections in donor populations, blood establishments can use molecular epidemiology, such as performed for HCV in The Netherlands. Another possibility is to obtain similar information on risk behaviour by structured interview at post-test counselling of infected donors. In The Netherlands MSM and IV Drug abuse remain major risk factors for HIV respectively HCV positivity. These data can be used by establishments for formulating their donor selection criteria to reduce the risk. Risk assessments by probabilistic modelling is common practice in other industries. If applied to the whole process of procurement, testing and production of plasma products in The Netherlands, they indicate that viral incidence in the donor population remains an important parameter for the overall safety of the end product. Other determinants are screening test sensitivity, inactivation procedures and product yield. In conclusion the safety of the donor population is of importance for the safety of blood and plasma products; ongoing surveillance and applied epidemiology and risk modelling are the tools to assess these parameters.

**Recognizing practical limitations and the concurrent social and ethical concerns:** Dr Andreas Reis Ethics Council of WHO had a meeting on ethics of blood donation. Donation is expression of generosity and solidarity. Blood is a symbol of life in many cultures, blood components are life savings, but also can transmit infections and harm the recipient by other means. Ethics is balancing risks and benefits, there are several stakeholders. Code of ethics was developed by ISBT and adopted by WHO. Important issues of the code include remuneration of donors, pre-donation counselling, post-donation counselling, post-donation confidentiality, referral of donors with positive test results, de-selection and discrimination e.g. MSM, institutionalized persons. Objective is to minimize risks and maximize benefits. Good ethics is based on good science. Many ethical issues have to be considered in blood donor selection. Many dilemmas accentuate in developing countries with limited resources.

### **General Discussion**

- The cost of medicine has increased by three professions; they are: lawyers, physicians, and regulators. Blood services have the responsibility to counsel screening positive donors. How does one handle the notification of the donor when the donor does not want to know the results? Dr Reis responded by stating that in the end there is only so much one can do. You must do your best to inform the donor.
- What is the difference of donor deferral rates between England and Scotland? How does it affect availability of blood supply? Answer by Dr James: Data from Scotland are available and Dr McClelland can provide an explanation. Data are alarming. Deferrals of first time donors exceed 30%. Temporarily deferred donors do not come back. High deferral affects supply in Scotland.
- Donors have the right to appropriate pre-donation information and counselling. But why donors should be accepted to donate who do not want to know positive test results. These donors should be referred to voluntary counselling centres for counselling.

- Is the choice not to know one's test results a cause of deferral? This issue should be discussed in more detail. Incentives based on time/duration of blood donations? e.g. provision of an anti-malarial treated sleeping net on the third donation as compared to the first donation. Answer by Dr Mohamed Nabeel: There is a difference in recognition of first time and regular donors. It is important to have special recognition for regular donors.
- Donor selection criteria should be country specific and not copied from other countries. This is also the case of testing of blood donors. Countries should make their own regulations.
- Incentives for donors in developing countries such as mosquito nets and other health promoting goods may also be exchanged to cash and could be counterproductive for the voluntary blood donor programme. These should be discussed in more detail.
- How is psychological pressure to donors managed in emergency and disaster situations? UK experience from London bombings shows long term effect on blood donations. It appears that effective communication with media is important to educate the donors.
- Evidence is needed why donors are deferred. Donors accept deferral if evidence is available. Deferral of >65 years of age donors is problematic and difficult, the same is true for CJD deferrals. VNRBD includes two aspects: safety and ethical aspects.
- Differences in epidemiology and how the data affect donor selection vary in different countries. Each country should do a risk analysis and develop selection criteria based on it. Selection criteria and questions in the health questionnaire may be different in different countries.
- Harmonization of regulations leads to unnecessary questions, e.g. diseases which are not present in the country.
- WHO guidelines will be very generic, but regional recommendations will be added. New definitions for blood donors are needed for aggregation and comparison of data.
- What are the MSM deferral guidelines in South Africa? Answer by Prof Heyns: Ministry asked why to reduce transmissions by blood transfusions by a few people a year when hundreds of people are daily infected. Blood service has consulted with local doctors, gay community and lawyers. Very different opinions. It is unethical to spend money on improving blood safety instead of using money in another more pressing healthcare sector. On the other hand if you know the risks and do nothing, it may lead into a civil or even criminal legal charges. You have to go through entire process and make a compromise. It is unethical to spend money on NAT versus spending money on prevention. One cannot make a decision on the science only but also need to consider the societal factors. Every country must make its own decision.
- Different approaches in donor selection may lead to different acceptable safety levels. This applies also to plasma industry and is not acceptable.
- Deferral policy has to be balanced between safety and availability.
- We should not compromise our donors and safety of our patients, but unnecessary restrictions should be removed.
- Common definitions are needed to compare data. I propose to keep the current definition for voluntary, non-remunerated blood donors. However, we need a common understanding of the current definition.
- Pre-donation counselling is important in enhancing safety of blood. It is different in different countries, e.g. in relation to privacy and confidentiality. Blood service should not be marketed as a testing centre. WHO selection guideline should be tailored in each country.

- In Zimbabwe voluntary testing and counselling centres are available. Approximately 10% of donors come to donate in order to get screening testing, because they do not want use the VTCs.
- The matter of to know or not know the results of screening is important. You have to set the rules before collecting blood during pre-donation counselling.

**B: PROVIDING REQUIRED PRODUCTS TO MEET PATIENT NEEDS: Moderator: Dr Brian McClelland**

**Principles that can be applied to develop the blood service to best meet the needs of the community, including the needs of special recipients: Dr Ahmed Gharehbaghian**

How much blood is needed, where and when is it needed? Country and patient perspectives considered: epidemiology, socioeconomic conditions, clinical indications, policies and initiatives on appropriate use of blood, access to health care, cultural issues, political issues and scientific advances. Factors influencing blood usage: size and growth rate of the population, prevalence of special diseases with high rate of usage, prevalence of disasters, level of health care system, number of transfusion centres and hospitals, acute hospital beds, number of transfusion specialists, existence of national guidelines, special wards using much blood, technology of collection and processing, availability of alternative therapies, accuracy of the management system of transfusion services. A study was performed in Iran to estimate required blood supply. The result of the study was to increase number of collections from 1.4 to 1.8 million units/year.

**Needs based practice; recipient factors - Use of blood in trauma patients: Dr Maureen McCunn**

Case study described - a heavily bleeding soldier needing a lot of different kind of blood components. Military blood use: 80 % combat deaths not preventable, 20% potentially preventable. Haemorrhage is the leading cause of death in wounded soldiers. Importance of getting a blood transfusion quickly. Coagulopathy due to trauma, tissue injury, lack of perfusion, haemodilution, hypothermia. Furthermore coagulation factors not active in an acidic pH. Component therapy induces hemodilution. It takes too long to get blood, un-crossmatched group O Rh-negative units need to be used, and thawed FFP must be available. Practice is to transfuse FFP and red cells in a 1: 1 ratio during damage control surgery. Trend is moving towards a restricted transfusion policy, defining transfusion triggers for trauma patients. Problem with giving FFP is the risk of TRALI which may carry a risk of 1:500. Discussion also on US Military's use of whole fresh blood.

**General Discussion**

- Is there a need for two channels of blood delivery, one for fast delivery in emergency and one for the regular distribution process? Why do we need component therapy, why do not transfuse whole blood? Answer by Dr McCunn: whole blood would be preferable.
- How old could the blood be? Answer by Dr McCunn: I do not have an answer.
- Question on whole blood vs. component transfusion is important, because WHO and others advocate component therapy.
- It is a question of availability and real need of blood. How do you control appropriate use of blood and what is the effectiveness of blood transfusions? Answer by Dr McCunn: There are no real alternatives available, EPO only for Intensive Care patients who are hospitalized for extended periods. In Iran every region has scientific committees to guide and oversight blood transfusions. 96% blood is transfused as red cell concentrates.

- Action should be taken on the whole blood vs. components issue. At present however, no data are available that fresh whole blood is better than red cells. Another question is the age of blood. All studies are observational studies. A randomized study is being planned in Canada.
- Ratio of red cells to FFP is important. At present it has been 1 to 5. In Malawi fast delivery is not possible. Maybe not 100% of collected blood should be processed to components, there should be a balance.
- Tissue perfusion and oxygen supply is important. Dr McCunn answered that her institution's policy is to resuscitate and stop haemorrhage at the same time.
- There is a WHO Aide Mémoire on safe blood components. The Global Database on Blood Safety gathers information on processing of blood. WHO does not recommend a goal of 100% blood components.
- The driver for plasma collection is at present IV immunoglobulin, not F VIII.
- The average age of red cell concentrates at transfusion (USA 2004) was 17 days. The military is really the experimental field, and practices are later adopted by civilian hospitals. There is no data available on fresh whole blood usage as compared to red cell concentrates.
- In Denmark colon cancer patients had better survival rates when transfused with older blood.

### **C: TRANSFUSION PRACTICES AT THE BEDSIDE: Moderator: Dr Silvano Wendel**

#### **Strategies and tools that can be used to minimize transfusion errors, monitor clinical outcomes, and identify and investigate potential adverse events. Systems that should be in place to document transfusion episodes:**

Dr Silvano Wendel gave the presentation on behalf of Dr Michael Murphy who was unable to attend the meeting.

The Serious Hazards of Transfusion (SHOT) report indicates seriousness of ABO incompatible blood transfusions. Transfusion is a multi-step process. In Oxford barcode technology has been developed to prevent bedside errors. The established technology is costly, needs training and back ups, but reduces errors. Furthermore, it is a rapidly developing technology and there may be compatibility problems between different systems. Another study has been done and the findings are to be published soon. It involves identifying the patient by a wrist band, and checking that the data matches that on the blood component label and accompanying paperwork. It was found that in general, only 37% of staff members check correctly at the bedside, and that the additional warning label on the bag did not improve the process. A nurse focus group has been established to consider strengths and weaknesses of the present system and how to improve the process.

#### **Discussion**

- Use of ISBT 128 standard in labeling of blood components. The standard has identification in common data elements for standardization.
- There should be a physical system which prevents transfusion before checks have been done.
- Bedside transfusion errors are a deviation from quality standards; it is a multifaceted problem.

- Different methods have been tried to reduce bedside errors. In Hong Kong a simple bar code reader and printer has been developed to compare data on the wrist band, blood tubes and blood bags. The system has given good results.

**Error prevention strategies and investigation. Outcome monitoring and investigation, transfusion records:** Dr Alain Beauplet

Haemovigilance was implemented in France in 1994 and is now mandatory, based on EU Directives. Dr Beauplet discussed the definitions of traceability and adverse reactions and notification reports corresponding to severity of adverse reaction. All hospitals have established a blood transfusion committee and have a haemovigilance officer. Patient identification is of paramount importance; 30% of errors occur at bedside. Patient identification numbers are important. The technical solution is bar codes. In the future an e-label will be used. Training of staff is important. Only nurses authorized after training can perform blood transfusions.

**Discussion**

- ABO compatibility is a global problem. Devices improve traceability. Quality culture is most important. Misidentifications occur not only in blood transfusions but in all aspects of healthcare. Patients need an ID.
- In developing countries there are no wrist bands. WHO could declare patient identification a key issue in order to encourage the introduction and use of wrist bands in developing countries.
- Patient identification during sample collection is important. In many developing countries transfusions are performed by physicians. Therefore doctors have to be trained in patient identification. It is more difficult to train doctors than nurses once doctors are working in the hospital. Training of doctors should be done during their studies.
- Patients do not understand why their name is asked when they carry a wrist band. Therefore, automated systems are needed.
- We should change our focus from TTIs to ABO incompatibility and this should be a recommendation of the GCBS.
- ISBT has a subgroup working on the wristband system.
- Measures effective in developed countries do not necessarily work in developing countries. The question is a matter of using a quality system and both nurses and doctors need training.
- E-learning of the blood transfusion process is available in UK and for others too. In the UK there is requirement that doctors pass this training before they are employed in their first job in the hospital.
- Doctors have also to be trained on how to treat adverse reactions due to ABO incompatible transfusions.
- The entire process is problematic. ABO incompatibility is the problem with blood transfusions but wrong identity also affects other processes in healthcare, e.g. incorrect drugs being administered.

## **Breakout groups for discussion**

A: Selecting safe donors: Moderator: Dr Virge James

B: Providing required products to meet patient needs: Moderator: Dr Brian McClelland

C: Transfusion practices at the bedside: Moderator: Dr Silvano Wendel

D: Structure and goals of GCBS as a WHO-hosted network: Dr Jay Epstein

## **Comments**

- Is there a universal set of standards based on which accreditation can be carried out? Practices and standards are different in African and in developed countries. Could the African Society for Blood Transfusion produce the standards for Africa?
- There are multiple organizations involved and the system has to be owned by countries and regions, not by developed countries.
- AABB has had a regional approach in Africa, China and South America and could work with other organizations in developing an accreditation system.
- Step wise audits may be a better means to develop a Quality System and Quality Management in developing countries. Accreditation is the final stage of this process: WHO is not an accrediting body. WHO cannot rank countries based on their performance. The WHO recommendation on basic requirements for Blood Transfusion Services should be considered as a standard for accreditation.
- ISBT should also be involved in the accreditation system.
- African countries should be helped in a step wise manner to build quality, meet standards and reach accreditation.
- The ISBT Academy supports national and regional courses in transfusion medicine, basic courses and advanced courses. In 2006 courses were arranged in Egypt, Tunisia, and Saudi Arabia.
- Better coordination of training is needed, as there are several organizations providing training and education.
- The ISBT Education Committee has been in contact with WHO to coordinate training. This could be a recommendation of the GCBS.
- Two years ago WHO prepared a framework and coordination document on training and education. The preparation of this framework has not been finalized.
- The NIH Grant Injury Research and Training Program in Egypt includes enhancing blood safety in massive blood transfusions. This is a joint project with the Ministry of Health of Egypt.
- FIODS is going regional in its training activities. Coordination is needed between other organizations and for this a common calendar is needed.
- IFRC GAP has developed a questionnaire on assessment on corporate governance and risk management. Regional meetings are organized to discuss and benchmark the results of self assessment.

## **RECOMMENDATIONS FROM BREAKOUT GROUP:**

### **DONOR SELECTION CRITERIA**

1. Donor deferral based on haemoglobin levels should take into account donation volume, donation interval and total donations. Further it should be considered if haemoglobin is the best measure, or would iron stores, ferritin or mean corpuscular volume be better indicators of iron status? Since much work is in progress, GCBS recommends waiting until next year to clarify acceptable levels.

2. Use EMEA definitions for first time and repeat donors and the Council of Europe definition for voluntary non-remunerated blood donor.
3. Does the donor have both the right to know and equally the right to choose not to know results of screening tests? Informing donor of their results is an obligation and if a donor does not want to know, then he or she should not be allowed to donate blood. GCBS should make this a priority issue.
4. Building a national database is essential for a safe blood supply. GCBS should make this a priority issue and influence national programmes to adopt this approach.
5. The lower age for first time donation is a legal and policy issue to be determined according to the laws and regulations governing consent in respective countries. There is a lack of data on upper age limit for donation. Collecting comparative data and surveillance of adverse events would help resolve this issue. GCBS should support data collection.
6. The ISBT Code of Ethics should be adopted by GCBS.
7. Blood safety should be balanced with blood availability, and two distinct sets of criteria established, based on evidence: donor safety criteria and recipient safety criteria. GCBS should create a task force for this.
8. GCBS should encourage national authorities to consider both availability and safety issues in considering new deferral criteria.
9. Blood services should update their deferral criteria when new technology becomes available, e.g. hepatitis A.

### **General Discussion:**

Additional discussion took place in plenary regarding communication with blood donors, including donor information before donation and the donor questionnaire.

### **Comments**

- Why the link to new technology (recommendation 9)? It is more related to scientific studies.
- The important issue on how to improve donor understanding of compliance, such as the need for a questionnaire, did not come into the discussion of the group.
- With AABB, the FDA is developing a uniform donor history questionnaire. FDA will accept a shortened questionnaire for repeat donors after 3 donations, but a full length questionnaire is used every 3 years.
- Some of the questions/recommendations do not apply to source plasma for fractionation.
- The current definition of VNRBD used by the Council of Europe and the European Union may be best.
- It is huge problem in Africa to convince governments to take responsibility to inform donors with positive screening tests.
- Most countries have HIV VTCs, so confirmatory tests do not have to be done at the blood service.
- There are logistic problems in informing donors in developing countries. Therefore, a recommendation is important to develop practices.
- The word new "technology" could be replaced with new "evidence" becoming available (issue/recommendation 9). All donors should be given enough information before donation. This is important for understanding of the questionnaire.

- As there is currently no confirmatory test for CJD, a donor should not be informed of a reactive result.
- Issue/recommendation 4 is too strong. Many countries do not have IT systems, even though they are very helpful.
- The lower age limit depends on the legal requirements of the country. Furthermore the donor has to pass all the other criteria.
- WHO provides guidance to countries to develop their guidelines.
- Comment on recommendation 3. It is the responsibility of the blood service to inform donors of positive results.
- IT systems are important for blood safety. Should GCBS establish recommendations on IT systems? It is important that the IT system to be used is validated to ensure that it works correctly.
- The donor has to understand the selection process, his responsibility and the health questionnaire. Donor selection is not only about physical fitness.
- There is a lack of evidence as to why some of the questions on the donor questionnaire are asked, with regard to donor history. However, in the absence of evidence, it is our obligation to protect the donor.
- Legal systems state minimum age and the decision to donate blood for the first time is an important decision, due to possible adverse reactions to blood donation. Legal systems have to be followed in blood donation.
- When introducing a new intervention or screening, we prepare information on the issue on our web site. That is, donor notification and communication is vital.
- Blood services should not be developed into infectious disease clinics. We have to refer positive donors to outside departments for treatment and follow up.
- Guidance on age of the donor has been given; age limit has to be at least the legal limit. In some cases the age limit may be lower with the consent of parents, according to the legal system of the country, e.g. legal age limit is 18, but you can get driver's license at 16.

## **RECOMMENDATIONS FROM BREAKOUT GROUP:**

### **PROVIDING REQUIRED PRODUCTS TO MEET PATIENT NEEDS**

General comment from the group: It is important to ensure that there is an outcome to report on, at the next plenary GCBS meeting. Responsibilities for any selected topics must be assigned, to ensure that this happens. Do the current WHO guidelines need to be revised? If revision is needed, how should this be done - by a consultation panel or evidence based?

#### **Topics for consideration**

1. Transfusion of whole blood versus blood components: is the current WHO guidance appropriate?
2. Does the age of a transfused component have an impact on clinical outcome for the patient?
3. Making available the evidence base for transfusion practice.

#### **Topic 1:**

- Is there requirement for an expert panel opinion or a statement on a review of evidence? Assemble and review published evidence: Commission assistance from WHO. History and rationale, clinical benefits/risk and costs.

- Survey of current practice: review and summarize available survey data and organizational reports. If further information is needed: enrol survey participants, conduct a web based survey. Get views on best practice, clinicians' satisfaction with supplied product, and implications of charge.
- Report to GCBS/WHO the recommendation of any revisions to WHO guidance or recommendation for further research.

Challenge: Which organizations will take project management? Any source of funding?

## **Topic 2:**

The effect of stored vs. fresher blood on outcome in patients receiving massive transfusion, has been studied, but not in randomized prospective studies. Randomized studies are now underway. What is the impact on blood services, of having to very fresh products to hospitals? Would activities in the BTS have to be reorganized?

## **Group recommendations:**

- Notify lead investigators of current studies, that GCBS members would be interested in supportive action.
- Request to be kept informed of progress in view of potential for findings to impact on blood supply.

## **General discussion:**

- Could there be lower (dual pricing) for plasma derivatives for developing countries? Collaboration with fractionators may be the answer. Consideration should be given to the reliability of information from developing countries, and it would therefore be best to compare prices using a universal monetary basis. Costs of plasma derivatives could be on the agenda of the next GCBS meeting.
- A lot of evidence would have to be collected to influence current practice of using blood components instead of whole blood. Funding could be provided by surgeon and anaesthesiologist organizations. A review of evidence for the clinical use of blood in one 2-year project cost up to \$ 250,000 USD.
- Haemoglobin content of the blood unit is an important issue.
- Component preparation is expensive and in many countries excess plasma has to be discarded.
- There are several questions related to transfusion of whole blood vs. components. Probably no answer will be found in the literature. UK group from Oxford has already reviewed literature on whole blood.
- Clinicians should be trained to correct anaemia, not to use standard doses of red cell units.
- Current guidelines tend to favour component therapy and may need to be reviewed to give a broader scope.
- In malaria patients with a very low haemoglobin level, red cell concentrates may be used to avoid circulatory overload.
- Obstetrics patients differ from trauma patients and benefit from red cell concentrates (rather than whole blood).
- Coagulopathic haemorrhage - coagulopathic disorder has also to be corrected.

- The recommendation is to establish a task force of volunteer participants. At present there are no funds for such a task force. Funds could be applied for, from funding bodies, to review the literature and propose the outline of a study.
- Prof Smit Sibinga proposed to contact the BEST working group and Dr Lorna Williamson (chair of the BEST). Prof Allain volunteered to do this. Dr van der Poel suggested collaborating with Council of Europe Guide Group when reviewing the literature.
- GCBS has too few participants with an interest in clinical transfusion medicine. However, these persons/organizations have to be involved in international activities.

Based on the discussion no recommendation could be developed. In summary, scientific evidence should be re-examined to clarify the scientific basis for the use of whole blood and to establish evidence based guidelines in light of component therapy versus whole blood therapy in anaemia and massive bleeding, especially coagulopathic haemorrhage. Furthermore the impact of the age of blood component at transfusion on the outcome of the patient should be studied.

### **RECOMMENDATIONS FROM BREAKOUT GROUP: TRANSFUSION PRACTICES AT THE BEDSIDE**

Human error is the major cause of incompatible blood transfusions, and most errors occur at the bedside. This is the responsibility of hospital management to correct.

#### **Recommendations to GCBS participants**

- GCBS participants are encouraged to sensitize member states to implement a haemovigilance system specifically including bidirectional traceability.
- Emphasize transfusion safety within the WHO patient safety initiative.
- WHO should include the number of countries that have developed and implemented haemovigilance as an indicator in the WHO Global Database on Blood Safety.

Although human error affecting transfusion safety can occur at any point in the transfusion chain it is recognized that the major cause of transfusion the wrong blood happens at the bedside. Based on this observation GCBS recommends:

- Establish a working group to assist WHO in developing candidate guidance document on monitoring and improving blood recipient safety (particular wrong blood transfusions) through haemovigilance systems. The working group could be WHO, Centre for Transfusion Medicine, Health Science Authority Singapore, Thalassaemia International Federation, Department of Health and Human Services, National Blood Service Tunisia, Hong Kong RC BS, National Blood Centre, Malaysia.
- GCBS participants are encouraged to sensitize member states to implement a haemovigilance system and to advocate that systems of monitoring and improving transfusion safety should be part of an overall quality system for the entire transfusion chain.
- GCBS participants are encouraged to advocate incorporation of blood safety in patient safety initiatives at national level.
- GCBS participants support the WHO Patient Safety Initiative in advocating haemovigilance which optimally is an integral part of hospital quality systems.
- An essential element of haemovigilance system is the establishment of a hospital transfusion committee.

- A system of monitoring and improving transfusion safety should be part of an overall quality system for the entire transfusion chain.

GCBS participants agreed that each country should develop cost effective strategies for transfusion safety at the bedside that are practicable according to priorities and resources available. The emphasis should be on measures to improve the transfusion safety process and should not focus on technology. GCBS participants agreed to establish a working group to develop an Aide Mémoire on Haemovigilance, and a curriculum of training.

### **Recommendations to the countries**

- Develop cost efficient strategies to develop a quality system, including traceability.
- Establish a system of patient identification.
- Use unique patient identification numbers.
- Establish a haemovigilance system.
- Ensure sufficient resources.
- Provide training for all staff.
- Promote credentialing of doctors, nurses and other staff in the practise of transfusion therapy.
- Establish a transfusion safety committee, at national level as part of patient safety initiative.
- Establish hospital transfusion committees.

### **Recommendation**

GCBS participants agreed to establish a working group to collaborate with WHO in developing a candidate guidance document on monitoring and improving transfusion recipient safety (particularly wrong blood transfusions) through haemovigilance systems. The following participants/organizations agreed to participate at the working group: WHO, Health Centre Authority, Singapore, Thalassaemia International Federation, Jerry Holmberg, Camel Boukef, Hong Kong RC BS, and Malaysian Blood Transfusion Service. Dr Silvano Wendel volunteered to send information to Jim Aubuchon, AABB, and ISBT. Dr Neelam Dhingra volunteered to take leadership of the working group

## **RECOMMENDATIONS FROM BREAKOUT GROUP: STRUCTURE AND GOALS OF GCBS AS A WHO-HOSTED NETWORK:**

A teleconference with the legal department of WHO took place with this group. GCBS membership and mechanisms of representation were discussed. The current terms of reference are acceptable for a network of WHO.

- How is fund raising organized and what is the outcome of fund raising? Fostering global collaboration is a core function of WHO. There are two pathways to raise funds. Participants may raise funds, but the funds have to be funnelled through WHO. WHO is the fund manager and treasurer, sub-funds are allocated to GCBS. WHO has also a fund raising component and can present GCBS business plans through WHO fund raising mechanisms. There are overheads to fund the work of the secretariat.
- Actual difference between GCBS observer participants and GCBS members (participants) is not great. Both can participate in work and discussions. Observers cannot take part in votes.
- Funds raised as a result of partnerships between two members of GCBS are not controlled by WHO. Only if WHO is a member of this partnership, would the legal rules of WHO apply.

### **THEME 6: ADMINISTRATIVE ISSUES**

WHO gave a presentation on the budget for GCBS 2007, showing the total costs of the GCBS in respect of the general meeting, planning group meeting, teleconferences, staffing of secretariat, publishing of reports and follow-up activities.

### **THEME 7: STRENGTHENING COLLABORATIONS**

The plenary meeting made the following proposals on collaborative projects:

1. Training of staff of the entire blood transfusion chain
2. Step wise pathways towards accreditation
3. Epidemiology of transfusion transmitted infections
4. Standards, cross border movements and potential for differential pricing of blood components
5. Cost effectiveness of NAT in different epidemiological settings

The WHO secretariat is requested to prepare a calendar of events.

### **THEME 8: RECOMMENDATIONS, SUMMARY, AND CONCLUSION**

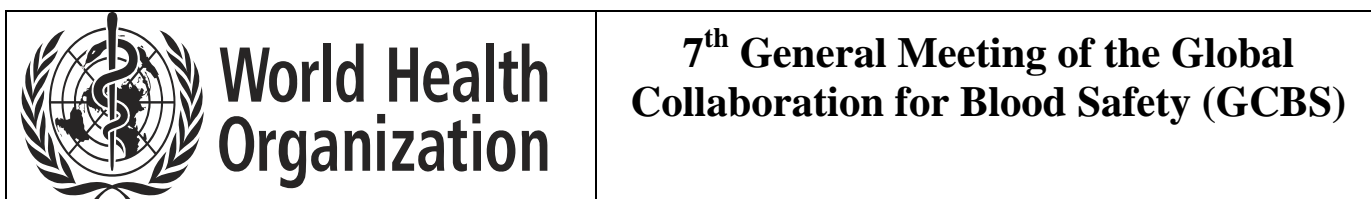
The seating of the new Chair and Vice Chair took place, and Dr Jay Epstein continued to chair the General Meeting. The following recommendations were established after further discussion and as a result of the discussions documented above:

- Mr Patrick Sullivan and Mr Paul Ashford were elected rapporteurs for the GCBS Plenary Meeting 2007.

- Dr Jay Epstein thanked all participants for cooperation and support during his chairmanship and transferred the chairmanship to Dr Silvano Wendel. Dr Wendel and Prof Jean-Pierre Allain, the Vice Chairman, thanked Dr Epstein. WHO staff, from both Eastern Mediterranean and headquarters, were thanked for arranging the meeting. Dr Dhingra thanked all participants for their active contributions, and thanked Dr Epstein for his leadership.

## **ANNEXES**

1. Programme of Work
2. List of Participants: GCBS 2006: 14-17 November 2006, Cairo, Egypt



**Organized jointly by WHO-HQ and WHO-EMRO**

14–17 November 2006

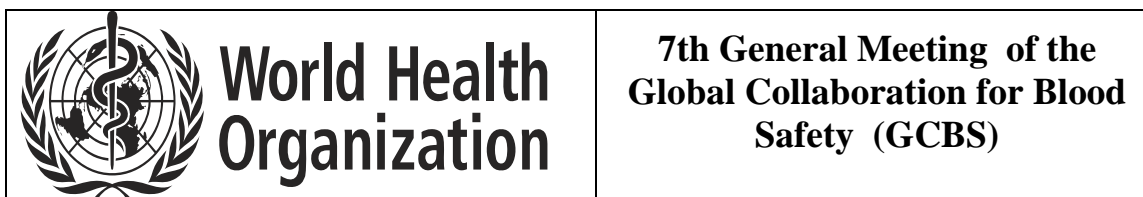
Venue: Kuwait Conference Hall, EMRO, Cairo

**PROGRAMME OF WORK**

<b>Tuesday 14 November 2006</b>		
08:30-09:00	Registration	
09:00-09:45	Opening ceremony: <ul style="list-style-type: none"> <li>• Minister of Health, Culture and Interior Security, Egypt</li> <li>• Regional Director, EMRO-WHO</li> <li>• Regional Adviser, Blood Safety, EMRO-WHO</li> <li>• Director, Essential Health Technologies, WHO-Geneva</li> <li>• Coordinator, Blood Transfusion Safety, WHO-Geneva</li> <li>• Chairperson</li> <li>• Vice Chairperson</li> </ul>	<ul style="list-style-type: none"> <li>• Minister of Health</li> <li>• Dr Hussein Gezairy</li> <li>• Dr Nabila Metwalli</li> <li>• Dr Steffen Groth</li> <li>• Dr Neelam Dhingra</li> <li>• Dr Jay Epstein</li> <li>• Dr Silvano Wendel</li> </ul>
09:45-10:00	Tea / Coffee break	
10:00-10:15	Introduction of participants	Chairperson / Vice Chairperson
10:15-10:25	Adoption of agenda, objectives of meeting and programme of work	
<b>Theme 1: Introduction of New Participating Organization</b>		
10:25-10:30	Report from Algeria National Blood Agency on their international activities, and acceptance and seating of new participant	Prof Kamel Kezzal
<b>Theme 2: GCBS Electoral Process</b>		
10:30 -10:45	Electoral process for new chair and vice-chair 2007-2008	Mrs Beryl Armstrong
<b>Theme 3: Review of GCBS Activities: Progress and Achievements</b>		
10:45-11:15	Review of 2005 GCBS - conclusions and recommendations	Chairperson / Vice Chairperson
11:15-11:25	Report from working group on Needs Assessment Model	Dr E Vinelli
11:25-11:50	Discussion	Plenary
11:50-12:10	Review of different mechanisms of collaboration and partnerships within WHO (via video link)	Mr Chris Zielinski Ms Donna Catliota
12:10-12:30	Report of Planning Group meeting	Chairperson
12:30-13:00	Discussion	
13:00-14:00	Lunch break	
<b>Theme 4: Global Efforts and Progress in Blood Safety</b>		
14:00-14:15	Highlights of WHO global efforts and progress on blood safety	Dr Neelam Dhingra
14:15-14:30	PEPFAR update: key issues - indicators of progress, strategies for financial sustainability	Dr Lawrence H. Marum

14:30-14:45	Establishing an African Institute for Education and Training in Blood Transfusion	Dr Jean C. Emmanuel
14:45-15:00	Role of Nucleic Acid Testing in blood safety	Prof Jean-Pierre Allain
15:00-15:30	Discussion	
15:30-15:45	Tea / Coffee break	
15:45-16:00	Disaster / pandemic preparedness in Singapore	Dr Diana Teo
16:00-16:15	International Blood Emergency Planning Action Group	Mr Richard Bedford
16:15-17:00	5-minute presentations and/or handouts on programmatic activities of GCBS participating organizations, and reports of major recent international meetings in Blood Safety <ol style="list-style-type: none"> <li>1. Africa Society for Blood Transfusion: Website and e-learning: Prof Anthon Heyns</li> <li>2. Arab Association of Blood Transfusion Services: Dr Ibraheem Alomar</li> <li>3. IBTO: Report from the Iranian Blood Transfusion Organization: Dr Hasan Abolghasemi</li> <li>4. IFRC: Tsunami Relief Blood Programme: Dr Thomas Krusius</li> <li>5. IPFA: Summary of international meetings and activities: Mr Theo Evers</li> <li>6. ISBT: Working Party on Transfusion Transmitted Infectious Diseases: Dr Silvano Wendel</li> <li>7. Tunisia WHO CC: Activities of the NBTC, Tunis: Prof Kamel Boukef</li> <li>8. Proposal for collaboration between WHO and ISBT to initiate a system of accreditation of blood services in the developing world: Mr Patrick Sullivan</li> </ol>	
<b>Wednesday, 15 November 2006</b>		
<b>Theme 5: Challenges in Optimizing the Transfusion Chain - Presentations and discussion</b>		
<b>08:00-10:00</b>	<b>A: Selecting safe donors: Moderator: Dr Jean Emmanuel</b>	
08:00-08:20	Guidelines on blood donor selection	Dr Virge James
08:20-08:40	Definition of voluntary non-remunerated and regular blood donor	Dr Mohamed Nabeel
08:40-09:00	Epidemiological tools and how they can be used to select safe donors. Utilizing epidemiological insight	Dr Cees van der Poel
09:00-09:20	Recognizing practical limitations and the concurrent social and ethical concerns	Dr Andreas Reis
09:20-10:00	Discussion	
<b>10:00-11:00</b>	<b>B: Providing required products to meet patient needs: Moderator: Dr Brian McClelland</b>	
10:00-10:20	Principles that can be applied to develop the blood service to best meet the needs of the community, including the needs of special recipients	Dr Ahmed Gharehabghian
10:20-10:40	Needs based practice, recipient factors	Dr Maureen McCunn
10:40-11:00	Discussion	
11:00-11:30	Tea / Coffee break	
<b>11:30-12:30</b>	<b>C: Transfusion practices at the bedside: Moderator: Dr Silvano Wendel</b>	
11:30-11:50	Strategies and tools that can be used to minimize transfusion errors, monitor clinical outcomes, and identify and investigate potential adverse events. Systems that should be in place to document transfusion episodes	Dr Silvano Wendel
11:50-12:10	Error prevention strategies and investigation. Outcome monitoring and investigation, transfusion records	Dr Alain Beuplet
12:10-12:30	Discussion	

12:30-13:30	Lunch break	
<b>Breakout for group discussion</b>		
13:30-15:00	A: Selecting safe donors B: Providing required products to meet patient needs C: Transfusion practices at the bedside D: Structure and goals of GCBS as a WHO-hosted network	Rapporteurs
15:00-15:30	Tea / Coffee break	
15:30-17:00	Breakout Group Discussions	Rapporteurs
<b>Thursday, 16 November 2006</b>		
<b>Report back and discussion</b>		
08:30-09:30	<b>A: Selecting safe donors:</b>	
	Report back from Breakout Group	Rapporteurs
	Plenary discussion	Moderator
09:30-10:30	<b>B: Providing required products to meet patient needs:</b>	
	Report back from Breakout Group	Rapporteurs
	Plenary discussion	Moderator
10:30-11:00	Tea / Coffee break	
11:00-12:00	<b>C: Transfusion practices at the bedside:</b>	
	Report back from Breakout Group	Rapporteurs
	Plenary discussion	Moderator
12:00-13:00	<b>D: Structure and goals of GCBS as a WHO-hosted network:</b>	
	Report back from Breakout Group	Rapporteurs
	Plenary discussion	Moderator
13:00-14:00	Lunch break	
<b>Theme 6: GCBS Administrative Issues</b>		
14:00-14:10	Budget for GCBS secretariat	Mrs Beryl Armstrong
<b>Theme 7: Strengthening Collaborations</b>		
14:10-14:50	Suggestions for proposals on collaborative projects	Plenary
<b>Theme 8: Recommendations, Summary, and Conclusion (seating of new Chair and Vice Chair)</b>		
14:50-15:45	Recommendations	
15:45-16:00	Tea / Coffee break	
16:00-17:00	Recommendations contd., Summary, Conclusion and Closure	Chair, Vice-chair and Secretariat
<b>Friday 17 November 2006</b>		
<b>Theme 9: Site visits - optional</b>		
08:30-14:00	Visit to National Blood Transfusion Centre in Cairo - presentation and site tour hosted by Medical Director	Dr Faten Moftah Participants



**Organized jointly by WHO-HQ and WHO-EMRO**

**Date: 14–17 November 2006, Venue: Kuwait Conference Hall, EMRO, Cairo**

*LIST OF PARTICIPANTS*

Status of participation	GCBS participant
<i>Organization/Institution/Association represented</i>	<i>Nominated member</i>
Africa Society for Blood Transfusion (AfsBT)	Prof Anthon Heyns President, Africa Society for Blood Transfusion (AfsBT) Post Net 211 Private Bag X20009 GARSFONTEIN Gauteng 0042 South Africa Tel: (012) 991 41 36 Fax: 086 682 8511 Mobile: 082 450 4799 Email: <a href="mailto:aheyns@home.com">aheyns@home.com</a>
AABB	Ms Karen Shoos Lipton CEO, AABB 8101 Glenbrook Road Bethesda, MD 20814 Tel: +1 (301) 215 6503 Fax: +1 (301) 652 2389 Email: <a href="mailto:karen@aabb.org">karen@aabb.org</a> (Unable to attend)
	Mr James Reilly Division Director AABB Division of Global Development 8101 Glenbrook Road Bethesda, MD 20814 Tel: +1.301.215.6511 Fax: +1.301.907.6895 Mobile: +1.301.792.5885 Email: <a href="mailto:jreilly@aabb.org">jreilly@aabb.org</a>
Arab Blood Transfusion Society	Dr. Abdel Allah Al Darees 1st Undersecretary for LABs, & BTSs Ministry of Health, Saudi Arabia Chairman, Arab Association for Blood Transfusion Services Tel: +966 505 426256 Fax: +966 143 50503 Email: <a href="mailto:drees000@hotmail.com">drees000@hotmail.com</a> (unable to attend)

	<p>Mr Ibraheem A. Alomar  General Director of Laboratories and Blood Banks  Ministry of Health  P.O. Box 11176  Riyadh, Arabie saoudite  Tel: 0096614359904  Fax: 0096614353564 EXT 222  mobile 00966555420133  Email: <a href="mailto:alomar70@hotmail.com">alomar70@hotmail.com</a></p>
Australian Red Cross Blood Service	<p>Dr Robert Hetzel  Chief Executive Officer  Australian Red Cross Blood Service  Tel: +61 39 412 1912  Fax: +61 89 472 2020  Email: <a href="mailto:rhetsel@arcbs.redcross.org.au">rhetsel@arcbs.redcross.org.au</a>  (unable to attend)</p>
	<p>Dr Sally Thomas  National Donor Medical Services Manager/International Relations Manager  Australian Red Cross Blood Service  GPO Box B 80 Perth WA 6838  Tel: +61 8 9472 2027  Fax: +61 8 9472 2020  Email: <a href="mailto:SThomas@arcbs.redcross.org.au">SThomas@arcbs.redcross.org.au</a></p>
Biomedical Excellence for Safer Transfusion (BEST) Collaborative	<p>Dr James P. AuBuchon  E. Elizabeth French Professor and Chair of Pathology  Dartmouth-Hitchcock Medical Center  One Medical Center Drive  Lebanon, New Hampshire 03756 USA  Tel: +1-603-650-8693  Fax: +1-603-650-4845  Email: <a href="mailto:James.P.AuBuchon@Hitchcock.ORG">James.P.AuBuchon@Hitchcock.ORG</a>  (unable to attend)</p>
Centers for Disease Control and Prevention (CDC)	<p>Lawrence H. Marum, MD, FAAP, MPH  Team Lead Medical Transmission  Global AIDS Program, HIV Prevention Branch  Centers for Disease Control and Prevention  1600 Clifton Road NE, MS E-04, Atlanta, GA 30333  Tel: +1 404-639-8929  Fax: +1 404-639-8105  Cell: +1 404-512-3047 / +1 404 421 7438  Email: <a href="mailto:LMarum@cdc.gov">LMarum@cdc.gov</a></p>
Council of Europe (CoE)	<p>Mrs Olga Cosic  Administrative Officer  Health Division  Department of Health and of the Partial Agreement in the Social and Public Health field  Directorate General III – Social Cohesion  Council of Europe  67075 Stasbourg Cedex  France  Tel: +33 (0) 3 88 41 26 11  Fax: +33 (0) 3 88 41 27 26  Email: <a href="mailto:olga.cosic@coe.int">olga.cosic@coe.int</a>  (unable to attend)</p>

	<p>Dr Cees L van der Poel  Sanquin  Plesmanlaan 125  PO box 9892  NL-1006 AN Amsterdam, The Netherlands  Tel: +31 (20) 512 30 00  Fax: +31 (20) 512 33 03  Email: <a href="mailto:c.vanderpoel@sanquin.nl">c.vanderpoel@sanquin.nl</a></p>
Établissement français du sang, France	<p>Dr Alain Beauplet  Director, International Affairs  Etablissement Français du Sang  20 avenue du Stade de France  93218 La Plaine St Denis Cedex  Tel: +331 55 93 96 19  Fax: +331 55 93 96 20  Email: <a href="mailto:alain.beauplet@efs.sante.fr">alain.beauplet@efs.sante.fr</a></p>
European Blood Alliance (EBA)	<p>Dr Clair Watts  European Blood Alliance (EBA)  Plesmanlaan 125  1066 CX Amsterdam, The Netherlands.  Tel: +31-20-512-3291  Fax: +31-20-512-3559  Email: <a href="mailto:eba@sanquin.nl">eba@sanquin.nl</a>  (unable to attend)</p>
	<p>Mr Richard Bedford  Chairman, International Emergency Planning Action Group (IBEPAG)  for Alliance of Blood Operators (ABO)  14 The Old Common, Chalford, Stroud  Gloucestershire GL6 8JN  United Kingdom  Tel: +44-1453-73-1513  Fax: :Not applicable  Mobile: +44-7900-28-1570  Email: <a href="mailto:rbedford@btinternet.com">rbedford@btinternet.com</a></p>
European Commission (EC)	<p>Dr Thomas Brégeon  Policy Officer, European Commission  Health &amp; Consumer Protection Directorate-General  Directorate C - Public Health &amp; Risk Assessment  Unit C6 Health measures  Rue Froissart 101, F 101 7/90  1049 Brussels  Belgium  Tel: +32-2-29 54 729  Fax: +32-2-29 59 580  Email: <a href="mailto:thomas.bregeon@ec.europa.eu">thomas.bregeon@ec.europa.eu</a>  (unable to attend)</p>

Food and Drug Administration (FDA), USA	Dr Jay Epstein ( <b>Current Chairperson</b> ) Director, Office of Blood Research and Review Center for Biologics Evaluation and Research Food and Drug Administration, HFM-300, 1401 Rockville Pike, Rockville, MD 20852, USA Tel: +1 301 8273518 Fax: +1 301 8273533 Email: <a href="mailto:jay.epstein@fda.hhs.gov">jay.epstein@fda.hhs.gov</a>
Health Canada	Dr Peter R. Ganz Director, Health Canada, Biologicals and Radiopharmaceuticals Evaluation Centre Tunney's Pasture, Building #6 Ottawa, Ontario Canada KIA OL2 AL:0603D Tel: +1 613 952 0237 Fax: +1 613 948 3655 Email: <a href="mailto:Peter_ganz@hc-sc.gc.ca">Peter_ganz@hc-sc.gc.ca</a> (unable to attend)
ICCBBA	Mr Paul Ashford Executive Director ICCBBA, Inc 204 St Charles Way, Unit 179E, York PA 17402 United States of America Tel: +44 7887 651076 Fax: +1 717 845 9727 Email: <a href="mailto:paul.ashford@iccbba.org">paul.ashford@iccbba.org</a>
International Association for Biologicals	Prof. Jean-Pierre Allain Division of Transfusion Medicine, University of Cambridge Long Road Cambridge CB2 2PT, United Kingdom Tel: +44 1223 548044 Fax: +44 1223 548155 Email <a href="mailto:jpa1000@cam.ac.uk">jpa1000@cam.ac.uk</a>
Iranian Blood Transfusion Organization	Dr Hasan Abolghasemi Managing Director Iranian Blood Transfusion Organization IBTO bldg Hemmat EXP. Way, Teheran Tel: 009821 8288582/3 Fax: 009821 8288581 Email: <a href="mailto:abolghasemi@ibto.ir">abolghasemi@ibto.ir</a>
International Consortium for Blood Safety (ICBS)	Prof Dr Mohamed El-Nageh (MD, Ph.D.) Executive Director, International Consortium for Blood Safety New York Blood Center, 310 East 67th Street, New York, NY 10021, USA Tel: +1 212 570 3319 Fax: +1 212 570 3320 Email: <a href="mailto:Elnagehmm@aol.com">Elnagehmm@aol.com</a>
International Federation of Blood Donor Organizations (FIODS)	Mr Niels Mikkelsen President, Bloddonorernei Denmark Vesterbrogade 191, 1800 Frederiksberg, Denmark Tel: +45 70 13 70 14 Fax: + 45 70 13 70 10 Email : <a href="mailto:mikkelsen@bloddonor.dk">mikkelsen@bloddonor.dk</a>

<p>International Federation of Red Cross and Red Crescent Societies (IFRCRCS)</p>	<p>Mr Peter Carolan  Senior Officer  Health and Care (Blood)  International Federation of Red Cross and Red Crescent Societies  Case Postale 372  1211 Genève 19  Suisse  Tel: +41 22 7304409  Fax: +41 22 733 0395  Email: <a href="mailto:Peter.Carolan@ifrc.org">Peter.Carolan@ifrc.org</a>  (unable to attend)</p> <p>Dr Che Kit Lin  Chief Executive, and Medical Director  Hong Kong Red Cross Blood Transfusion Service  15 King's Park Rise, Kowloon  Hong Kong  Tel: +852 2710 1301  Fax: +852 2780 1862  Email: <a href="mailto:cklin@ha.org.hk">cklin@ha.org.hk</a></p>
<p>International Plasma Fractionation Association (IPFA)</p>	<p>Mr Theo Evers  Executive Director, International Plasma Fractionation Association (IPFA)  Plesmanlaan 125  PO Box 9190, 1006 AD Amsterdam , The Netherlands  Tel: +31 20 512 35 61  Fax: +31 20 512 35 59  Email: <a href="mailto:ipfa@sanquin.nl">ipfa@sanquin.nl</a></p>
<p>International Trauma Anaesthesia and Critical Care Society</p>	<p>Dr Maureen McCunn  International Trauma Anaesthesia and Critical Care Society  Department of Anaesthesiology  University of Maryland School of Medicine  22 South Greene Street, Room T4R10  Baltimore, Maryland 21201-1595, USA  Tel: +1 (410) 328 2359  Fax: +1 (410) 328 7175  Email: <a href="mailto:mmccunn@gmail.com">mmccunn@gmail.com</a></p>
<p>International Society of Blood Transfusion (ISBT)</p>	<p>Dr Paul Strengers  Secretary-General  ISBT Central Office  Jan Goyenkade11, NL-1075 HP Amsterdam  The Netherlands  Tel: 31 20 512 32 39  Fax: 31 20 673 7306  Email: <a href="mailto:isbt@eurocongres.com">isbt@eurocongres.com</a>  (unable to attend)</p>

	<p>Prof. Dr. Mahmut Bayik  Senior Vice President  International Society of Blood Transfusion (ISBT)  Private office, Bagdat caddesi. Noter sokak 22/3 Saskinbakkal,  Kadikoy-Istanbul/Turkey  Tel: +90.216.467 28 28  Fax: +90.216.467 48 63  Mobile: +90.532.262 48 23  Email: <a href="mailto:kmttd@kmttd.org.tr">kmttd@kmttd.org.tr</a>  Email: <a href="mailto:m_bayik@superonline.com">m_bayik@superonline.com</a></p>
National Blood Authority, England	<p>Mr Martin Gorham  Chief Executive  National Blood Authority  President, European Blood Alliance  Oak House, Reeds Crescent, Watford,  Herts WD24 4QN, United Kingdom  Tel: +44 1923 486 804  Fax: +44 1923 486 802  Email: <a href="mailto:martin.gorham@nbs.nhs.uk">martin.gorham@nbs.nhs.uk</a>  (unable to attend)</p> <p>Mr Patrick Sullivan  Head of Operations, Diagnostics, Development &amp; Research  National Blood Services  Crescent Drive  Brentwood  Essex CM15 8DP  Tel: +441277 306002  Fax: + 4401277 306180  Email: <a href="mailto:patrick.sullivan@nbs.nhs.uk">patrick.sullivan@nbs.nhs.uk</a></p>
Network for Advancement of Transfusion Alternatives (NATA)	<p>Prof Alice Maniatis  Chief, Haematology,  Henry Dunant Hospital  107, Mesogeion Ave.  Athens, GR 11526  Greece  Tel:+210 (697) 9161/697 602 5010  Fax:  Email: <a href="mailto:alicemaniatis@yahoo.com">alicemaniatis@yahoo.com</a>  (unable to attend)</p>
PPTA Source	<p>Mr Jan Bult  President, PPTA Source  147 Old Solomon's Island Road – Suite 100, Annapolis, MD 21401 USA  Tel: + 410 263 8296  Fax: + 410263 2298  Email: <a href="mailto:jbult@pptaglobal.org">jbult@pptaglobal.org</a></p>
Plasma Protein Therapeutics Association, Europe (PPTA)	<p>Mr Charles Waller  Executive Director, Plasma Protein Therapeutics Association Europe, Boulevard  Brand. Whitlock 114/115,  B 1200 Brussels, Belgium  Tel: +32 2 705 5811  Fax: +322 705 5820  Mobile: +44 7785 324 345  Email: <a href="mailto:ppta.eu@pptaglobal.be">ppta.eu@pptaglobal.be</a>  Email: <a href="mailto:cwaller@pptaglobal.be">cwaller@pptaglobal.be</a></p>

<p>South Asian Association of Transfusion Medicine (SAATM)</p>	<p>Dr R M Bindusara  President, SAATM  Director, National Blood Transfusion Service, Sri Lanka  555 Elvitigala Mavatha  Colombo 05  Sri Lanka (M) (R)  Tel: 0094(77)758 3858/ 00941 554 655  Fax: 0094 112369939  Email: <a href="mailto:drmm@sltnet.lk">drmm@sltnet.lk</a>  Email: <a href="mailto:champasubodhinie@yahoo.com">champasubodhinie@yahoo.com</a></p>
<p>Swiss Red Cross</p>	<p>Dr Guy Levy  Medical Director  Blood Transfusion Service SRC  Gutenbergstrasse 14  Postfach 5510  3001 Bern, Switzerland  Tel : +41 31 380 81 86  Fax: +41 31 380 81 80  Email: <a href="mailto:guy.levy@redcross.ch">guy.levy@redcross.ch</a>  (unable to attend)</p> <p>Mr Urs Keiser  Project Manager, Swiss Red Cross in Egypt  c/o National Blood Transfusion Center  51, Wazarit El Zera'a Street, Agouza/Dokki,  Giza/Cairo, Egypt  Tel/Fax: +20 2 762 9116  Mobile: +20 12 113 5156  Email: <a href="mailto:Urs.Keiser@redcross.ch">Urs.Keiser@redcross.ch</a></p>
<p>Thalassaemia International Federation (TIF)</p>	<p>Dr Androulla Eleftheriou  Scientific Director, Thalassaemia International Federation  31 Ifigeneias Street, 2007 Strovolos  Nicosia – Cyprus  Tel: +357-22-319129  Fax: +357-22-314552  Email: <a href="mailto:thalassaemia@cytanet.com.cy">thalassaemia@cytanet.com.cy</a>  (unable to attend)</p> <p>Dr Matheos Demetriades  TIF Projects Coordinator  Thalassaemia International Federation  P.O.Box 28807, 2083 Strovolos  31, Ifigenias Street  2007 Strovolos - Cyprus  Tel: +357 22 319 129  Fax: +357 22 314 552  Email: <a href="mailto:thalassaemia@cytanet.com.cy">thalassaemia@cytanet.com.cy</a></p>
<p>Therapeutic Goods Administration (TGA) Laboratories, Australia</p>	<p>Dr Albert Farrugia  Senior Adviser and Head, Blood and Tissue Unit, Office of Devices, Blood and Tissues, Therapeutic Goods Administration, P.O. Box 100, Woden, ACT, Australia 2606  Tel: +61 (2) 6232 8539/ +61 413 018 413  Fax: +61 (2) 6232 8939  Email: <a href="mailto:albert.farrugia@health.gov.au">albert.farrugia@health.gov.au</a>  (unable to attend)</p>

World Federation of Hemophilia (WFH)	Mr Miklos Fulop CEO/ Executive Director World Federation of Hemophilia 1425 René Lévesque Boulevard West Montréal, Québec Canada Tel : (514) 875-7944 Fax : (514) 875-8916 Email : <a href="mailto:mfulop@wfh.org">mfulop@wfh.org</a>
World Health Organization (WHO)	Dr Neelam Dhingra Coordinator Blood Transfusion Safety Department of Essential Health Technologies World Health Organization-HQ Avenue Appia 20, CH-1211 Geneva 27, Switzerland Tel: +41 22 791 46 60 Fax: +41 22 791 48 36 Email: <a href="mailto:dhingran@who.int">dhingran@who.int</a>
<b>WHO Collaborating Centres</b>	
<b>AFR</b>	
Zimbabwe	Dr M.E.Chitiyo Medical Director, National Blood Transfusion Service Mazowe Street North PO Box A101, Avondale, Harare Tel: + 263 4 70 78 04/793552 Fax: + 263 4 70 78 02 Email: <a href="mailto:nbts@africaonline.co.zw">nbts@africaonline.co.zw</a>
<b>AMRO</b>	
Brazil	Dra. Márcia Otani Mitiko Chefe Depto Controle de Qualidade Serologia Fundação Pró-Sangue Hemocentro de São Paulo Av. Enéas de Carvalho Aguiar, 155 CEP 05403-000 São Paulo SP Tel: +55 (11) 3061-5544 (Ramal 353) Fax: +55 (11) 3088-8317 Email: <a href="mailto:otanimarcia@uol.com.br">otanimarcia@uol.com.br</a> (unable to attend)
<b>EMR</b>	
Jordan	Dr Janiet Merza Niquir Director, National Blood Bank, P.O. Box 10058, Al Ashrafieh, Amman, Jordan Tel: +962 (6) 474 91 23 Fax: +962 (6) 474 91 23 Email: <a href="mailto:nbbam@moh.gov.jo">nbbam@moh.gov.jo</a> (unable to attend)
Tunisia	Prof Kamel Boukef Director, National Blood Transfusion Centre, Ministry of Public Health, 13 rue Djebel Lakhdar, Bab Saadoun, Tunis, 1006, Tunisia Tel: +216 71 568 903 Fax: +216 71 562 957 Email: <a href="mailto:kamel.boukef@rns.tn">kamel.boukef@rns.tn</a>
<b>EUR</b>	

Belgium	<p>Dr Luc Kestens  Director, Department of Microbiology  Institute of Tropical Medicine  155 Nationalestraat  B-2000 Antwerp  Belgium  Tel: +32-3 247 63 32  Fax: +32-3 247 63 33  Email: <a href="mailto:ikestens@itg.be">ikestens@itg.be</a>  (unable to attend)</p>
Germany	<p>Professor Rainer Seitz  Director, Paul-Ehrlich-Institute (PEI)  Paul Ehrlich Str. 51-59  D-63225 Langen  Germany  Tel: +49-6103 77 2600  Fax: +49-6103 77 1250  Email: <a href="mailto:haematology@pei.de">haematology@pei.de</a>  (unable to attend)</p>
	<p>Dr Thomas Montag-Lessing  Paul Ehrlich Str. 51-59  D-63225 Langen  Germany  Tel: +49-6103 77 2600  Fax: +49-6103 77 1250  Email: <a href="mailto:haematology@pei.de">haematology@pei.de</a></p>
Finland	<p>Dr Tom Krusius  Medical Director, Finnish Red Cross Blood Transfusion Service  Kivihaantie 7, FIN-00310 Helsinki, Finland  Tel: +358-9-5801 270  Fax: +358-9-5801 233  Email: <a href="mailto:tom.krusius@bts.redcross.fi">tom.krusius@bts.redcross.fi</a></p>
The Netherlands	<p>Dr Martin Smid  Managing Director Sanquin Consulting Services  P.O. Box 11085  9700CB Groningen, The Netherlands  Tel: +31-503610061  Fax: +31-503619039  Email: <a href="mailto:m.smid@sanquin.nl">m.smid@sanquin.nl</a></p>
Slovenia	<p>Dr Božidar Voljč  Unit for Quality Management  Blood Transfusion Centre of Slovenia  Šlajmerjeva 6  1000 Ljubljana  Slovenia  Tel: +386 1 5438 100  Fax: +386 1 2302 224  Email: <a href="mailto:zdenka.gjurin@ztm.si">zdenka.gjurin@ztm.si</a>  (unable to attend)</p>

United Kingdom of Great Britain and Northern Ireland	Mrs Anne Bradshaw Director, Department of Haematology Imperial College of Medicine, Hammersmith Hospital Campus Ducane Road London W12 0HS United Kingdom of Great Britain and Northern Ireland Tel: +44-208 383 1975 Fax: +44-208 383 1979 Email: <a href="mailto:abradshaw@hhnt.org">abradshaw@hhnt.org</a> (unable to attend)
United Kingdom of Great Britain and Northern Ireland	Dr John Parry Director Sexually Transmitted and Bloodborne Virus Laboratory Virus Reference Department(V.R.D.) Health Protection Agency 61 Colindale Avenue London NW9 5HT United Kingdom of Great Britain and Northern Ireland Tel: +44-208 383 1975 Fax: +44-208 383 1979 Email: <a href="mailto:abradshaw@hhnt.org">abradshaw@hhnt.org</a> (unable to attend)
United Kingdom of Great Britain and Northern Ireland	Dr E. J. Parker-Williams United Kingdom National External Quality Assessment Scheme for General Haematology, UK NEQAS (H) Watford General Hospital PO Box 14 Watford WD 18 0FJ United Kingdom of Great Britain and Northern Ireland Tel: +44-1923 217 878 Fax: +44-1923 217 879 Email: <a href="mailto:haem@ukneqas.org.uk">haem@ukneqas.org.uk</a> (unable to attend)
United Kingdom of Great Britain and Northern Ireland	Prof David J Anstee Director, International Blood Group Reference Laboratory (IBGRL) National Blood Service Southmead Road Bristol BS10 5ND United Kingdom of Great Britain and Northern Ireland Tel: +44-117 991 2103 Fax: +44- 117 959 1660 Email: <a href="mailto:david.anstee@nbs.nhs.uk">david.anstee@nbs.nhs.uk</a> (unable to attend)
<b>SEAR</b>	
Thailand	Dr Rachanee O-Charoen Director, National Blood Centre, The Thai Red Cross Society, 1871 Henri Dunant Road, Pathumwan, Bangkok 10330 Thailand Tel: +662 251 3111/252 4106-9 Fax: +662 255 5558 Email: <a href="mailto:rachanee@webmail.redcross.or.th">rachanee@webmail.redcross.or.th</a>
<b>WPR</b>	

Australia	<p>Prof Elizabeth M. Dax  Director, National Serology Reference Laboratory(NRL)  St Vincent's Institute of Medical Research  4<sup>th</sup> floor, Healey Building  41 Victoria Parade  Fitzroy, Vic. 3065  Australia  Tel: (61-3) 9418 1111  Fax: (61-3) 9418 1155  Email: <a href="mailto:liz@nrl.gov.au">liz@nrl.gov.au</a>  (unable to attend)</p>
China	<p>Prof ZHU Yongming  President, Shanghai Blood Center, Director, WHO Collaborating Center for Blood Transfusion Services  #1191, Hongqiao Rd.  Shanghai 200051,  Peoples Republic of China  Tel: +86 21 6278 0789  Fax: +86 21 62958414  Email: <a href="mailto:ymzhu@sbc.org.cn">ymzhu@sbc.org.cn</a></p>
Singapore	<p>Dr Diana Teo  Director, Centre for Transfusion Medicine  Health Sciences Authority, 11 Outram Road  Singapore 169078  Tel: +65 621 30 600  Fax: +65 622 38 682  Email: <a href="mailto:Diana_TEO@hsa.gov.sg">Diana_TEO@hsa.gov.sg</a></p>
<b>Individual capacity as expert</b>	
<b>AFR</b>	
Côte d'Ivoire	<p>Dr Seidou Konate  Médical Adviser, Centre National de Transfusion Sanguine, KM4 Boulevard de Marseille 18 BP, 898, Abidjan 18  Tel: +225 22522666/ 07 07 91 11  Fax: +225 21358060  Email: <a href="mailto:plasma@aviso.ci">plasma@aviso.ci</a></p>
Malawi	<p>Dr Jean C. Emmanuel  Project Manager/Technical Adviser/Transfusion Medicine specialist  Malawi Blood Transfusion Service Project  PO Box 1055  Blantyre, Malawi  Office Direct Tel/fax: +265 1 822 612  Mobile Roaming: +265 9 962 156  Home Tel: +265 1 820 145  Email: <a href="mailto:emmanuelj@africa-online.net">emmanuelj@africa-online.net</a></p>
South Africa	<p>Mr Duncan Armstrong  Executive Director, National Bioproducts Institute,  10 Eden Road, Pinetown 3610, Private Bag X9043, Pinetown 3600  Tel: +27 31 719 67 89  Fax: +27 31 708 56 14  Email: <a href="mailto:armstrongd@nbi-kzn.org.za">armstrongd@nbi-kzn.org.za</a></p>

Uganda	Dr Peter K. Kataaha Senior Medical Consultant, Ministry of Health, PO Box 1772, Kampala Tel: +256 41 259 195/257 155 / +256 772 431 880 Fax: +256 41 257 484 Email: <a href="mailto:director@ubts.go.ug">director@ubts.go.ug</a>
<b>AMR</b>	
Argentina	Dr Ana Emilia del Pozo National Coordinator of Clinical Use of Blood Commission, International Affairs Secretary, Association Argentina de Hemoterapia e Immunohematologia Chacabuco 824, CP 1069, Buenos Aires Tel: +54 11 43620645 Fax: +54 11 43085325 Email: <a href="mailto:adelpozo@speedy.com.ar">adelpozo@speedy.com.ar</a> <a href="mailto:anaemiliad03@yahoo.com.ar">anaemiliad03@yahoo.com.ar</a>
Brazil	Dr Silvano Wendel ( <b>Current Vice-Chairperson</b> ) Medical Director, Blood Bank, Hospital Sirio Libanes, Rua D. Adma Jafet 91, 20 Andar, Sao Paulo, 01308-050 Tel: +55 11 3255 7746 Fax: +55 11 3257 1290 Email: <a href="mailto:snwendel@uninet.com.br">snwendel@uninet.com.br</a>
Honduras	Dr Elizabeth Vinelli Medical Director, National Blood Programme, Cruz Roja Hondureña, 2a Avenida, Entre 6a y 7a calle, Comayagüela, MDC Tel: +504 237 18 00 Fax: +504 238 0185 Email: <a href="mailto:cenasa@honduras.cruzroja.org">cenasa@honduras.cruzroja.org</a>
USA	Dr Jerry Holmberg Senior Advisor for Blood Policy and Executive Secretary Advisory Committee on Blood Safety and Availability Department of Health and Human Services 1101 Wootton Parkway, Suite 250 Rockville, MD 20852, USA Tel: + 240 453 8809 Fax: + 240 453 8456 Email: <a href="mailto:Jholmberg@osophs.dhhs.gov">Jholmberg@osophs.dhhs.gov</a>
USA	Prof. John Hess Professor of Pathology and Medicine University of Maryland 5606 Oak Place Bethesda, MD 20817, USA Tel: + 410 328 3834 Fax: + 410 328 6816 Email: <a href="mailto:jhess@umm.edu">jhess@umm.edu</a> (unable to attend)
USA	Dr Roger Y. Dodd Executive Director, Biomedical Safety American Red Cross Holland Laboratory 15601 Crabbs Branch Way Rockville MD 20855, USA Tel: +1 301 738 0641 Fax: +1 301 738 0495 Email: <a href="mailto:dodd@usa.redcross.org">dodd@usa.redcross.org</a> (unable to attend)

<b>EMR</b>	
Iran Blood Transfusion Organization (IBTO)	Dr Ahmad Gharehbaghian Deputy of managing director of IBTO for research & education affairs Department of research & education IBTO bldg, Next to the Milad tower Hemmat exp way Tehran-Iran Tel: (+9821) 88 288 501-20 Direct: 88601573 Fax: (+9821) 88 288 555 Email: <a href="mailto:gharehbaghian@ibto.ir">gharehbaghian@ibto.ir</a>
United Arab Emirates	Dr Amin Hussain Al Amiri Director , Dept. of Blood Transfusion and Research Services Sharjah Blood Transfusion and Research Centre Tel: + 971 50 6464371 Fax: + 971 6 5388717 Email: <a href="mailto:alamiriamin@hotmail.com">alamiriamin@hotmail.com</a> (unable to attend)
<b>EUR</b>	
Czech Republic	Dr Lenka Walterova Head of Dept. Clinical Haematology Regional Hospital Liberec OKH KNL 46063 Liberec Czech Republic Tel:00420-602-163242 Fax: 00420-485312023 Email: <a href="mailto:lenka.walterova@nemlib.cz">lenka.walterova@nemlib.cz</a> (unable to attend)
Luxembourg	Dr. Jean-Claude Faber Luxembourg Red Cross Blood Transfusion Service Medical Direction L-1840 Luxembourg Tel: +352 45 05 05 1 Fax: +352 (45) 05 05 247 Email : <a href="mailto:transfusion@croix-rouge.lu">transfusion@croix-rouge.lu</a> (unable to attend)
The Netherlands	Prof Cees Th. Smit Sibinga Academic Institute for International Development of Transfusion Medicine (IDTM), University of Groningen, Sanquin Consulting Services, Post Bus 11085, Groningen, 9700 CB Tel: +31 50 361 00 61 / +31 6 2223 4325 Fax: +31 50 361 90 39 Email: <a href="mailto:c.smitsibinga@sanquin.nl">c.smitsibinga@sanquin.nl</a> Email: <a href="mailto:c.sibinga@planet.nl">c.sibinga@planet.nl</a>
Russian Federation	Prof Evgueni Selivanov Director, Russian Institute of Haematology and Transfusiology 2 <sup>nd</sup> Sovestskaya Street 16, St Petersburg, 193024 Russia Tel: + 7 812 274 56 50 Fax: +7 812 274 9227 Email: <a href="mailto:evgsell@mail.wplus.net">evgsell@mail.wplus.net</a> (unable to attend)

United Kingdom	Dr Brian McClelland SNBTS, Ellen's Glen Rd, Liberton, Edinburgh, Tel: +44 (0) 7887 933 472/ +44 (0) 131 536 5962 Fax: +44 (0) 131 536 5781 Email: <a href="mailto:brian.mcclelland@snbts.csa.scot.nhs.uk">brian.mcclelland@snbts.csa.scot.nhs.uk</a>
<b>SEAR</b>	
India	Dr Zarin S. Bharucha Transfusion Medicine Expert, 4/40 Wadia Baug, G D Ambekar Road, Mumbai, 400033, India Tel: +91 22 24710214 Fax: +91 22 24714927 Email: <a href="mailto:zsbharucha@rediffmail.com">zsbharucha@rediffmail.com</a>
India	Dr Nabajyoti Choudhury Medical Director, Prathama Blood Center, Jivraj Mehta Hospital, Vasna, Ahmedabad-380007, India. Tel: +91-79-26600101 (O); 79-26851228 (R); Fax: +91-79-26611850; Mobile:9825414251. Email: <a href="mailto:nc@prathama.org">nc@prathama.org</a> <a href="mailto:Nabajyoti_2000@yahoo.com">Nabajyoti_2000@yahoo.com</a>
<b>WPR</b>	
Hong Kong, China	Dr Che Kit Lin Chief Executive, Hong Kong Red Cross Blood Transfusion Service 15 King's Park Rise, Kowloon Hong Kong Tel: +852 2780 1862 Fax: +852 2780 1862 Email: <a href="mailto:cklin@ha.org.hk">cklin@ha.org.hk</a>
Japan	Dr Kenji Tadokoro Executive Officer, Blood Service Headquarters Japanese Red Cross Society 1-1-3 Shiba-Daimon, Minato-ku Tokyo 105-8521 Japan Tel: +81-3-3437-7506 Fax: +81-3-3459 1560 Email: <a href="mailto:k-tadokoro@bs.jrc.or.jp">k-tadokoro@bs.jrc.or.jp</a> (unable to attend)
Malaysia	Dr Yasmin Ayob Director, National Blood Centre, Jalan Tun Razak, Kuala Lumpur, 50400 Malaysia Tel: +603 26 95 55 55 Fax: +603 269 258 26/80362 Email: <a href="mailto:yasminpd@tm.net.my">yasminpd@tm.net.my</a>
<b>Invited Organization/Speakers</b>	

Agence Nationale du Sang Algeria	Prof Kamel Kezzal President of the Agence Nationale du Sang BP 59 Tixeraine 15 route du Kaddoua Alger, Algérie Tel: (213-21)55-02-98 Fax: (213-21) 55-03-66 Email: <a href="mailto:ans@sante.dz">ans@sante.dz</a>
Egyptian National Blood Transfusion Service (ENBTS)	Dr Mahomed Nabeel Head of Donor Care Dept. Technical Advisor of the Egyptian Swiss Project Egyptian National Blood Transfusion Service, ENBTS Telephone: Office 002-02-7620202 Mobile: 002-0101692529 Fax: 002-02-7613124 Email: <a href="mailto:yasso217@yahoo.com">yasso217@yahoo.com</a>
International Emergency Planning Action Group (IBEPAG)	Mr Richard Bedford Chairman, International Emergency Planning Action Group (IBEPAG) for Alliance of Blood Operators (ABO) 14 The Old Common, Chalford, Stroud Gloucestershire GL6 8JN United Kingdom Tel: +44-1453-73-1513 Fax: :Not applicable Mobile: +44-7900-28-1570 Email: <a href="mailto:rbedford@btinternet.com">rbedford@btinternet.com</a>
Iran Blood Transfusion Organization (IBTO)	Dr Ahmad Gharehbaghian Deputy of managing director of IBTO for research & education affairs Department of research & education IBTO bldg, Next to the Milad tower Hemmat exp way Tehran- Iran Tel: (+9821) 8288501-20 Fax: (+9821) 8288555 Email: <a href="mailto:gharehbaghian@ibto.ir">gharehbaghian@ibto.ir</a>
The Netherlands	Dr Cees L van der Poel Secretary, Medical Affairs Sanquin Plesmanlaan 125 PO box 9892 NL-1006 AN Amsterdam, The Netherlands Tel: +31 (20) 512 30 00 Fax: +31 (20) 512 33 03 Email: <a href="mailto:c.vanderpoel@sanquin.nl">c.vanderpoel@sanquin.nl</a>
WHO, Geneva	Dr Andreas Reis Technical Officer Ethics, Trade, Human Rights and Health Law (ETH), WHO, Geneva Tel: 41 22 791 3932 Email: <a href="mailto:reisa@who.in">reisa@who.in</a>
	Mr Chris Zielinski Technical Officer Evidence and Information for Policy Knowledge Management and Sharing Tel: +41 22 791 4435 Email: <a href="mailto:zielinski@who.int">zielinski@who.int</a> <a href="mailto:dvt@compuserve.com">dvt@compuserve.com</a> (through video link)

	<p>Ms Donna Catliota  Legal Officer  Director-General's Office  Office of the Legal Counsel  Commercial and Contractual Matters  WHO, Geneva  Tel: +41 22 791 1874  Email: <a href="mailto:catliotad@who.int">catliotad@who.int</a>  (through video link)</p>
United Kingdom	<p>Dr Virge James  Park Holme  Endcliffe Hall Avenue  Sheffield S10 EL  England  Tel: +44 114 266 0880  Fax: +44 114 268 7410  Email: <a href="mailto:virge.james@nbs.nhs.uk">virge.james@nbs.nhs.uk</a></p>
<b>Observers</b>	
NBTS, Ministry of Health and Population Cairo, Egypt	<p>Dr Faten Mofteh  Director- General  NBTS, Ministry of Health and Population  Cairo, Egypt  Tel: +20 2 7485 319  Fax: +20 2 7613 124  Mobile : +20 (12) 2174480  Email: <a href="mailto:Faten@mofteh.com">Faten@mofteh.com</a></p>
Egypt	<p>Dr Magdy El Ekiaby  Head of Blood Bank, Shabrawishi Hospital  Fini Sq., Dokki  Cairo, Egypt  Tel: +20 (2) 338 4684  Fax: +20 (2) 338 4679  Email: <a href="mailto:elekiaby@tedata.net.eg">elekiaby@tedata.net.eg</a></p>
Établissement français du sang France	<p>Mrs Claudine Hossenlopp  Chargée de mission  Établissement français du sang  20 avenue du stade de France  93218 La Plaine Saint-Denis Cedex  Direction des Affaires Internationales  Tél: +331 55 93 96 17  Fax : +331 55 93 96 20  Mobile : +33672109104  Email : <a href="mailto:claudine.hossenlopp@efs.sante.fr">claudine.hossenlopp@efs.sante.fr</a></p>
	<p>Dr Champa Manchanayake  Executive Committee member – SAATM  Senior Medical Officer – NBTS  555 – Alvitigala Mawatha  Colombo 05 Sri Lanka  Tel : 0094 1125 82250 (R) / 0094 7736 14751  Fax : 0094 1153 32153  Email : <a href="mailto:champasubodhinie@yahoo.com">champasubodhinie@yahoo.com</a></p>

<b>WHO Regional Offices</b>	
Dr Jean-Baptiste Tapko Regional Adviser Blood Safety WHO Regional Office for African Region (AFRO)	Tel: +47 2 41 39250 Fax: +47 241 39511 Email: <a href="mailto:tapkoj@afro.who.int">tapkoj@afro.who.int</a>
Dr Nabila Metwalli Regional Adviser Laboratory WHO Office for Eastern Mediterranean Region (EMRO)	Tel: +202 670 5314 Fax: +202 2765416 Mobile: +2012 2177909 Email: <a href="mailto:metwallin@emro.who.int">metwallin@emro.who.int</a>
Dr Valentina Hafner Medical Officer WHO Regional Office for European Region (EURO)	Tel: +45 39 17 1265 Fax: +45 39 18 18 Email: <a href="mailto:VHA@euro.who.int">VHA@euro.who.int</a> (unable to attend)
Dr Jose Ramiro Cruz Regional Adviser Laboratory WHO/PAHO AMRO, Regional Office for the Americas	Tel: +1 202 974 3230 Fax: +1 202 974 3663 Email: <a href="mailto:CRUZJOSE@paho.org">CRUZJOSE@paho.org</a> (unable to attend)
Dr Rajesh Bhatia WHO Office for South East Asian Region (SEARO)	Tel: +11 23370804 Fax: +11 332 7972 Email: <a href="mailto:kumaris@whosea.org">kumaris@whosea.org</a> (unable to attend)
Dr Yu Junping Blood Safety Specialist WHO Office for Western Pacific Region (WPRO)	Tel: + 632 528 9848 Fax: +632 521 1036 Email: <a href="mailto:yuj@wpro.who.int">yuj@wpro.who.int</a> (unable to attend)
<b>WHO Secretariat</b>	
Dr Howard Zucker Assistant Director-General Health Technologies and Pharmaceuticals (HTP)	Tel: +41 22 791 1087 Email: <a href="mailto:ZuckerH@who.int">ZuckerH@who.int</a> (unable to attend)
Dr Steffen Groth Director, Essential Health Technologies	Tel: +41 22 791 4387 Fax: +41 22 791 48 36 Email: <a href="mailto:groths@who.int">groths@who.int</a>
Dr Neelam Dhingra (Project Leader, GCBS Secretariat) Coordinator, Blood Transfusion Safety (BTS) Essential Health Technologies	Tel: +41 22 791 46 60 Fax: +41 22 791 48 36 Email: <a href="mailto:dhingran@who.int">dhingran@who.int</a>
Mrs Beryl Armstrong Technical Officer Blood Transfusion Safety Essential Health Technologies	Tel: +41 22 791 36 45 Fax: +41 22 791 48 36 Email: <a href="mailto:armstrongb@who.int">armstrongb@who.int</a>
Dr Noryati Abu min Medical Officer, Blood Transfusion Safety Essential Health Technologies	Tel: +41 22 791 3948 Fax: +41 22 791 48 36 Email: <a href="mailto:abuaminn@who.int">abuaminn@who.int</a> (By video link)
Ms Jan Fordham Technical Officer Blood Transfusion Safety Essential Health Technologies	Tel: +41 22 791 3644 Fax: +41 22 791 48 36 Email: <a href="mailto:fordhamj@who.int">fordhamj@who.int</a> (unable to attend)
Dr Luc P Noel Coordinator, Clinical Procedures Essential Health Technologies	Tel: +41 22 791 36 81 Fax: +41 22 791 48 36 Email: <a href="mailto:noell@who.int">noell@who.int</a> (unable to attend)

Dr Ana Maria Padilla Marroquin Scientist Quality and safety of plasma derivatives Medicine Policy and Standards	Tel: +41 22 791 38 92 Fax: +41 22 791 48 36 Email: <a href="mailto:padillaa@who.int">padillaa@who.int</a> (unable to attend)
Dr Nabila Metwalli Regional Adviser Laboratory WHO Office for Eastern Mediterranean Region (EMRO)	Tel: +202 670 5314 Fax: +202 2765416 Mobile: +2012 2177909 Email: <a href="mailto:metwallin@emro.who.int">metwallin@emro.who.int</a>