Challenges and Priority Needs for Blood Transfusion Safety in Developing Countries

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Outline of the Presentation

- **Challenges** for blood transfusion safety in developing countries
  - Assessments, observations and country experiences
  - *WHO Blood Safety and Availability Fact Sheet 2013* (Global Database on Blood Safety - 2011 data)

- **Priority needs** for blood transfusion safety in developing countries
  - WHO governing bodies (WHA, EB and RC) resolutions, recommendations emerging from WHO global, regional and national level activities and requests from countries
Challenges facing Blood Transfusion Safety in Developing Countries

1. Inefficient blood supply structures
2. Blood shortages, inequitable access and increasing needs
3. Weak quality systems
4. Risk of transfusion-transmitted infections
5. Inappropriate use of blood products
1. Inefficient Blood Supply Structures

- Ineffective blood policies and structures
- Lack of government ownership and leadership
- Lack of legislation and institutional coordination
- Unclear roles and responsibilities - fragmented systems
National Policies and Legislation

- 32% of countries report having no national blood policy
- 101 countries have specific legislation on safety and quality of blood transfusion
  - 30 (81%) high-income
  - 55 (60%) middle-income
  - 16 (44%) low-income countries

WHO Blood Safety and Availability Fact Sheet 2013
Inefficient Blood Supply Structures

- Deteriorating *infrastructures*
- *Insufficient* qualified and trained *personnel*
- Obsolete *equipment*
- *Stock-outs* of test kits and reagents common
2. Blood Shortages, Inequitable Access and Increasing Needs

- Lowest blood donation rates in low- and middle-income countries

- Blood donation rate (donations/1000 population):
  - 39.2 (range 7.1 – 62.4) high-income countries
  - 12.6 (range 1.5 – 35.8) middle-income countries
  - 4.0 (range 0.6 – 7.6) low-income countries

- 75 countries report collecting fewer than 10 donations/1000 population

- Requirements higher in countries with more developed health-care systems
Global Population and Blood Supply

Total Blood Collection: 107 million 177 countries
Blood Shortages, Inequitable Access And Increasing Needs

- Shortages contribute to increased risk of infection transmission by
  - forcing a reliance on unsafe replacement or paid donors and
  - greater pressure to issue untested blood
- Supply of blood largely restricted to urban populations in many countries
- Need for blood continues to grow globally due to
  - changes in population demographics and disease patterns
  - expansion and development of health systems
  - improvements in diagnostic and treatment options
  - advances in surgical and medical procedures requiring blood transfusion
Blood Shortages, Inequitable Access And Increasing Needs

- Weak voluntary non-remunerated blood donor programmes
- Dependence on replacement donors and low donor retention rates
- Fragmentation and a lack of coordination of BTS
- Increasingly stringent donor selection criteria reducing the pool of eligible donors
- High prevalence of HIV or hepatitis infection limits potential blood donor base
- Loss of >5 million blood units globally every year due to
  - collection from unsuitable donors
  - poor blood stock management, storage and transportation

Increasing costs, further limiting availability
In 73 countries, more than 50% of the blood supply still dependent on family/replacement and paid blood donors

- 8 are high-income countries, 45 are middle-income countries and 20 are low-income countries

22 countries still report collecting paid donations, around 800,000 donations in total

- 58% of paid donations reported are apheresis donations
3. Weak Quality Systems

- Lack of national standards and standard operating procedures (SOPs), varying technical standards
- Limited training opportunities
- Poor quality assessment and limited supervision
- Inadequate data and documentation
- Conflicts, natural disasters and economic or humanitarian crises in many countries
4. Risk of Transfusion-transmitted Infections

- No standards for donor recruitment, selection, testing, processing and transfusion

- Unacceptable but preventable risk of TTIs

- Coverage, quality and effectiveness of blood screening vary between and within countries

- Increased risk to blood safety due to
  - Dependence on replacement, paid blood donors and
  - Inadequate systems for donor selection, deferral and counselling
  - Separating blood into components with no assured safety and quality
Risk of Transfusion-transmitted Infections

- Greater exposure to infectious agents due to changes in habitat, increasing mobility of populations, conflicts

- Emerging pathogens, West Nile and Chikungunya viruses

- Malaria, dengue, Chagas disease and Human T-Lymphotrophic viruses

- Climate change resulting in emergence of new diseases, emergence of known diseases in previously non-endemic areas

- Disease outbreaks disrupting blood donations, availability, safety and quality
5. Inappropriate Use of Blood Products

- Lack of national clinical transfusion guidelines
- Lack of knowledge and ignorance about clinical transfusion
- Inadequate training opportunities
- Limited interaction between hospitals and blood centres
- Absence of hospital transfusion committees (HTC) result in marked variations in prescribing patterns among clinicians
Inappropriate Use of Blood Products

- Variations in prescribing patterns – within hospitals, amongst doctors and between countries
- **Unnecessary** transfusions and failure to use simple, safe alternatives to transfusion
- Pressure to use blood donated by family / replacement blood donors, even if no longer needed
- **Unsafe** transfusion practices and errors, particularly at the patient’s bedside
137 countries report that a total of 51,000 hospitals perform blood transfusion, serving a population of around 3.1 billion

– Hospital transfusion committees (HTCs) are present only in 54% of hospitals in low- and middle-income countries, whereas 79% of the hospitals in high-income countries have HTCs
Unsafe Transfusion Practices

- Inappropriate **prescription** for transfusion
- Failure to establish correct **patient identity**
- Incorrect details on **blood request form**
- Incorrectly collected or wrongly **labelled** blood sample
- Transfusion **laboratory error**
- Wrong **identification** of the blood unit
- Failure to check **integrity** of the blood unit
- Incorrect **handling and storage** of blood units in clinical areas
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<tr>
<th>Year</th>
<th>Resolution</th>
<th>Description</th>
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<tr>
<td>1975</td>
<td>WHA28.72</td>
<td>Utilization and supply of human blood and blood products</td>
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<td>1987</td>
<td>EB79.1</td>
<td>Blood and blood products</td>
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<td>1981</td>
<td>WHA40.26</td>
<td>Global strategy for prevention and control of AIDS</td>
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<td>1992</td>
<td>WHA45.35</td>
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<td>1995</td>
<td>WHA48.27</td>
<td>Paris AIDS Summit</td>
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<td>2000</td>
<td>WHA53.14</td>
<td>HIV/AIDS: Confronting the epidemic</td>
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<td>2002</td>
<td>WHA55.13</td>
<td>Quality of care: patient safety</td>
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### WHA/EB/RC Resolutions on Blood Safety

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<tr>
<th>Year</th>
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<td>2005</td>
<td>WHA58.13</td>
<td>World Blood Donor Day, 14 June</td>
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<td>2005</td>
<td>CD46.R5</td>
<td>Regional blood safety initiative (Americas)</td>
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<td>2007</td>
<td>WHA60.24</td>
<td>Health promotion in globalized world</td>
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<td>2007</td>
<td>WHA60.29</td>
<td>Health technologies</td>
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<td>2008</td>
<td>CD142.R5</td>
<td>Blood Transfusion Safety: Progress report</td>
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<td>2010</td>
<td>WHA63.12</td>
<td>Availability, safety and quality of blood products</td>
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<td>2010</td>
<td>WHA63.18</td>
<td>Viral hepatitis</td>
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<td>2010</td>
<td>WHA63.20</td>
<td>Chagas disease: control and elimination</td>
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WHO Blood Transfusion Safety Programme

Vision

- Self-sufficiency in safe blood and blood products for transfusion and universal access

Mission

- Facilitate self-sufficiency, equitable access and appropriate use of safe and quality blood/blood products worldwide
- Ensure donor and patient safety, and contribution of BT to patients' health and survival
WHO strategy for safe blood transfusion
Stratégie de l’OMS pour la sécurité transfusionnelle

Voluntary blood donation

Testing of all donated blood

Safe and rational use of blood

Haemovigilance
Quality systems
National coordination of blood transfusion services
Priority Needs for Blood Transfusion Safety in Developing Countries

- Strengthening of **national blood systems**: policy, strategic plans, governance, legislation and regulation
- Blood transfusion services: organization, management and delivery system
- Community participation, donor education and voluntary non-remunerated blood donation
- **Quality** systems for all steps from vein-to-vein
- Appropriate **use** of blood and blood products and good clinical transfusion practice
- Monitoring, surveillance and **haemovigilance**
- Operational **research**
Essential Health Technologies

Blood Transfusion Safety

Blood System Strengthening

Leadership & partnerships

Ethical & evidence-based policy

Norms, standards & tools

Knowledge management & research

Technical support & capacity

Monitoring & assessment

Improved access and appropriate use of safe and quality blood and blood products

Donor

Recruitment

Testing

Prescribing

Collection

Processing

Issuing

Transfusion

Follow-up

Blood Transfusion Service

Patient

Hospital

Blood Bank

Clinical Ward

Plasma Fractionation