

# Hazards of **Blood** Transfusion

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# Blood transfusion

Is there a risk?

# Hazards of Transfusion

- Immediate Reactions
  - Acute hemolytic transfusion reaction
    - Due to destruction of transfused mismatched red cells by recipient's antibodies in plasma
    - After receiving 15-20 ml of transfusion
    - Can be prevented by careful , standardize matching before transfusion
    - ABO incompatibility is the major cause of AHTR

# Hazards of Transfusion

- Febrile nonhaemolytic transfusion (FNHTR)
  - Rise of temperature above 1.5C of base line level
  - Due to leukocytes from transfused donor's blood
- Urticarial & anaphylactic
  - Due to antibodies to donor's plasma proteins

# Hazards of Transfusion

- Transfusion Related Acute Lung Injury (TRALI)
  - Acute respiratory distress syndrome
  - Fatal complication
  - Due to lymphocytes from donors especially donor is multiparous
  - If TRALI is definite, donor must be removed from donor pool and never permit to donate blood again

# Hazards of Transfusion

- Circulatory overload
- Massive Transfusion
- Hypocalcaemia due to chelation of calcium from blood by anticoagulant
- Bacterial contamination
- Air embolus

# Delayed Reaction

- After 24 hours of transfusion
- Alloimmunization to RBC antigens
- Alloimmunization to HLA antigens
- GVHD
- Post transfusion purpura
- Iron overload

# Transmission of Transfusion transmitted infections

## – Hepatitis B and C

- Both can transmit through blood
- Post transfusion hepatitis rate depends on general prevalence rate of infection
- Type of testing
- Standard of testing procedure



# Transmission of Transfusion transmitted infections

## – HIV 1&2

- HIV 1 is most prevalent strain
- Transmitted mainly through blood and body secretion
- Strategies used in Australia to cut off HIV infection spread through blood transfusion
  - Education of community about the dangers of high risk behaviour
    - » Persons at risk has ceased to be blood donor
    - » Persons at risk should not be as potential donors
  - A confidential declaration form to exclude all carriers of the HIV virus was introduced in early 1985.
  - A test for the antibody to the HIV virus has been performed since April 1985.
  - Products made from plasma are processed to remove virus or heat treated to destroy virus.

# Transmission of Transfusion transmitted infections

- Human T Lymphotropic Viruses ( HTLV)
  - Retro virus – can be transmitted sexually, through sharing needles by blood transfusion.
- Creutzfeldt Jakob Disease
  - Extremely rare disease of brain caused by slow virus
  - Has potential for transmission by organ or tissue transplant.

# Transmission of Transfusion transmitted infections

## – Malaria

- In afebrile donors- microscopic examination of malaria parasites cannot give positive because of low parasite level in blood
- Detection by ICT method cannot differentiate between live and death of parasite / pLDH/ HRP2 within two weeks of parasitemia
- Malaria fever free of 3 years and away from endemic areas for 1 year is the criterion for prevention of malaria transmission through blood transfusion

## – Syphilis

- Detection by VDRI and TPHA test

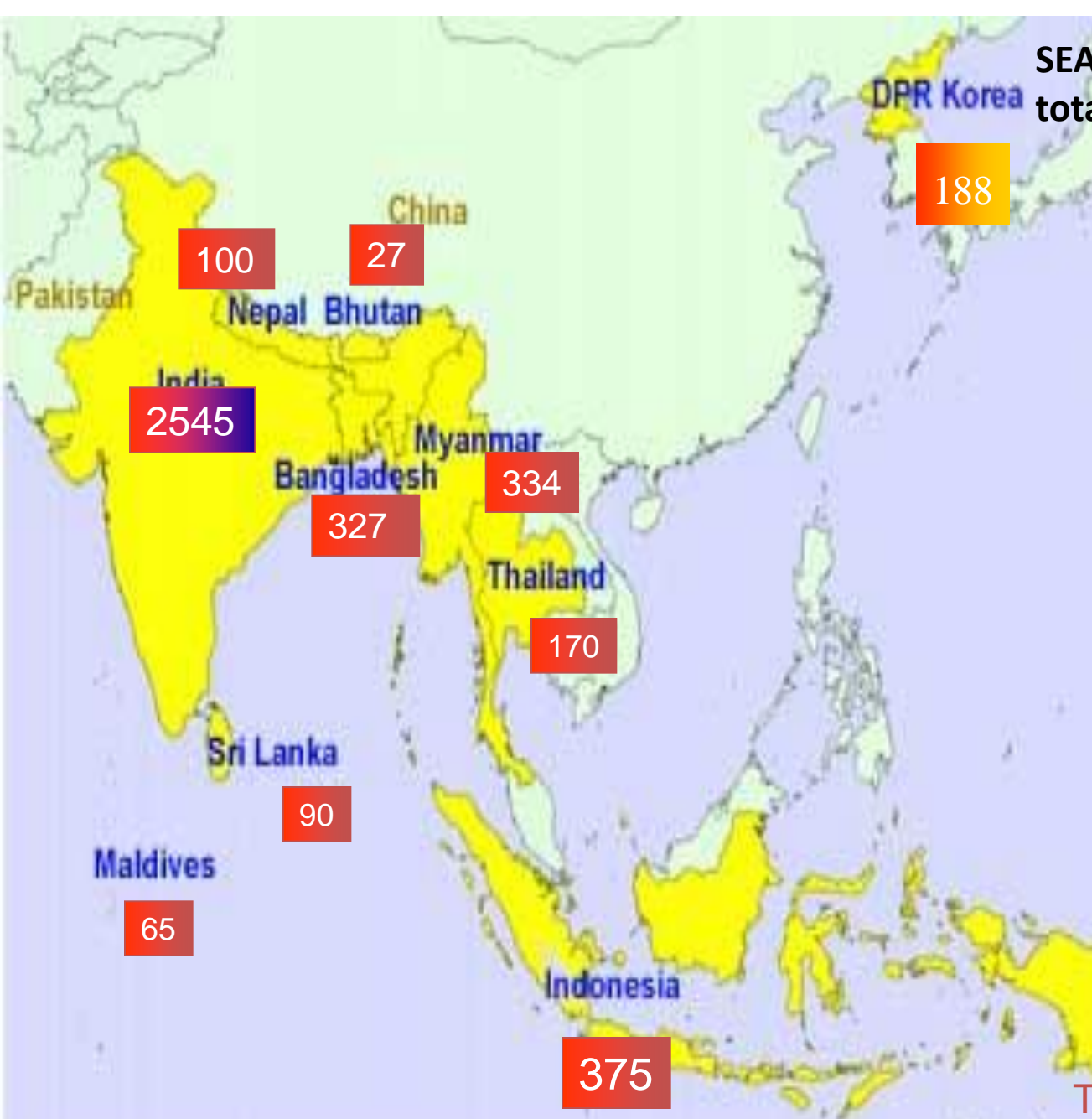
# Management for Safety of Blood Transfusion Service

# **Regional Status of Blood Transfusion Services in South East Asia Region of WHO**

**Dr. Aparna Singh Shah, MD  
Regional Adviser**

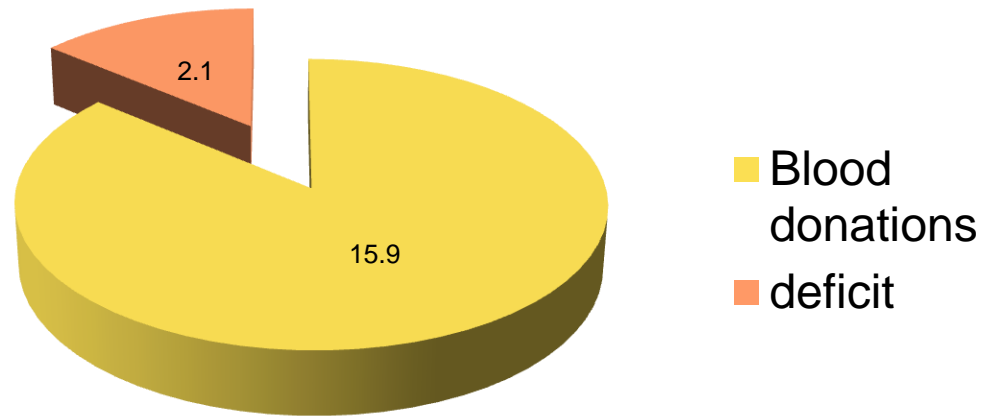
**Health Laboratory Services and Blood Transfusion Services  
Regional office for South East Asia- World Health organization  
[shahap@who.int](mailto:shahap@who.int)**

SEAR: 6% of land area, 25% of total world population & 11 MSs



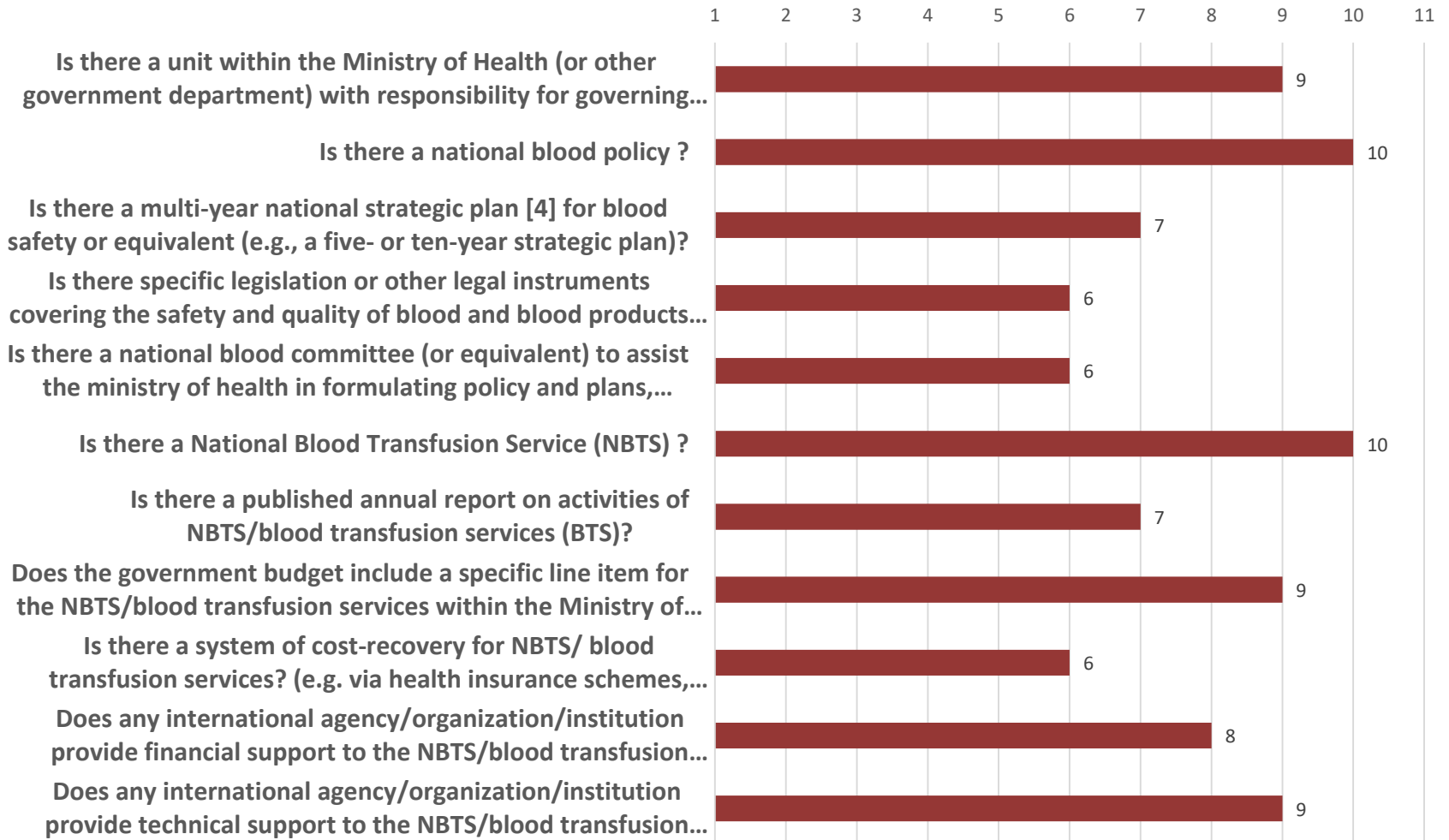
•Blood Centers in SEAR: 4,227

# Estimated blood units collections in the region



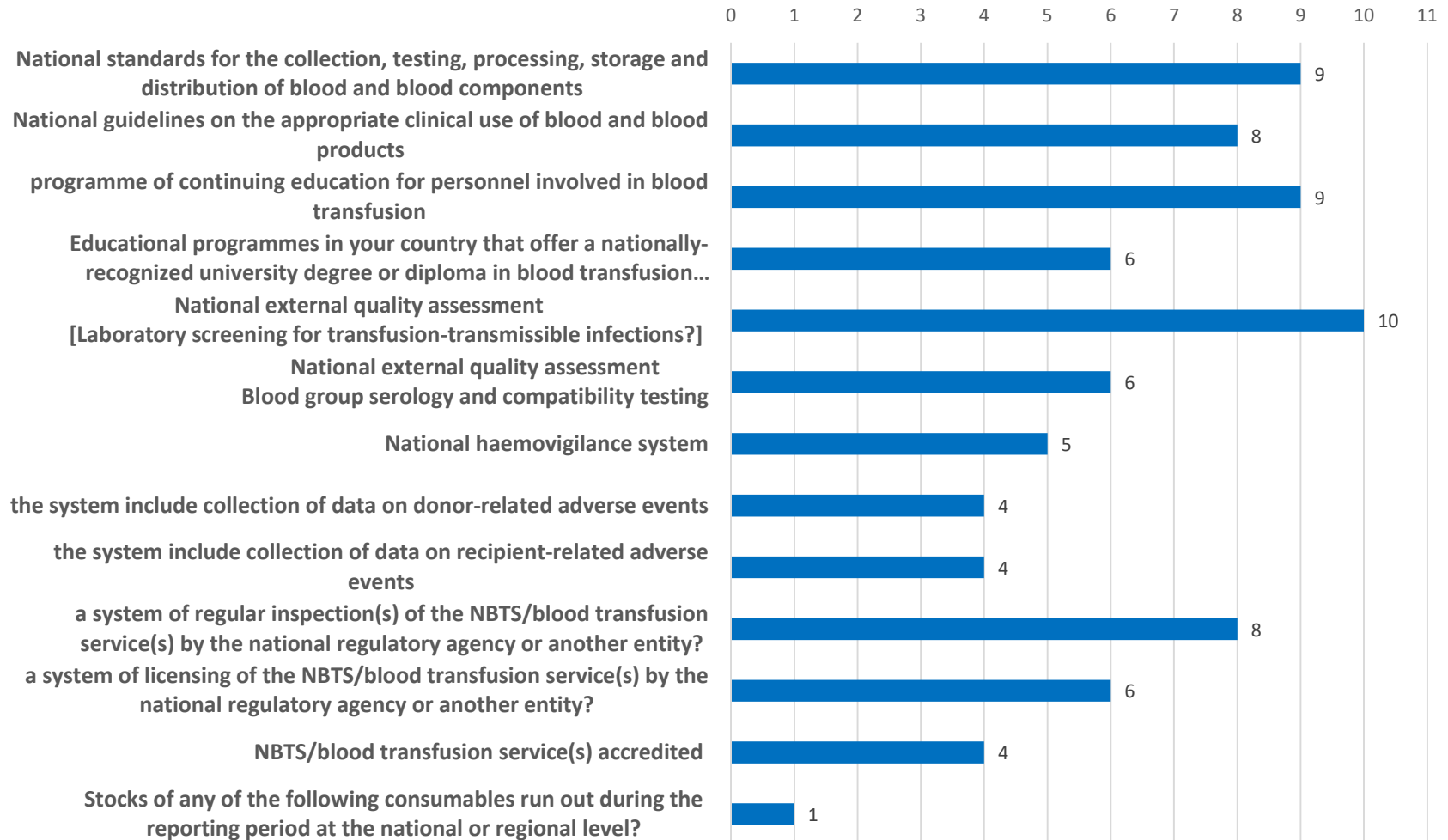
**Around 15.9 Million units per year**

# BTS-Policy & Structure

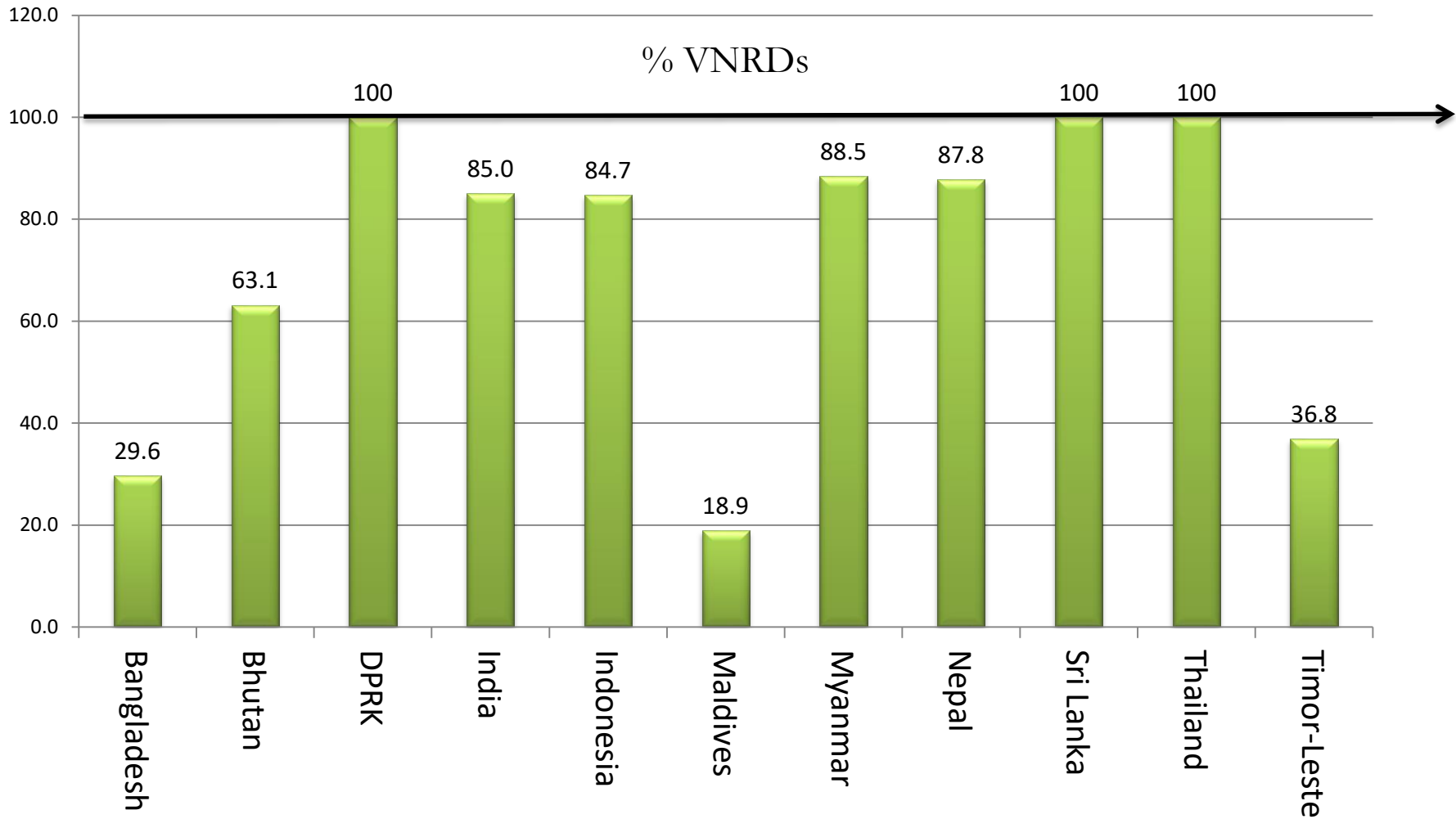




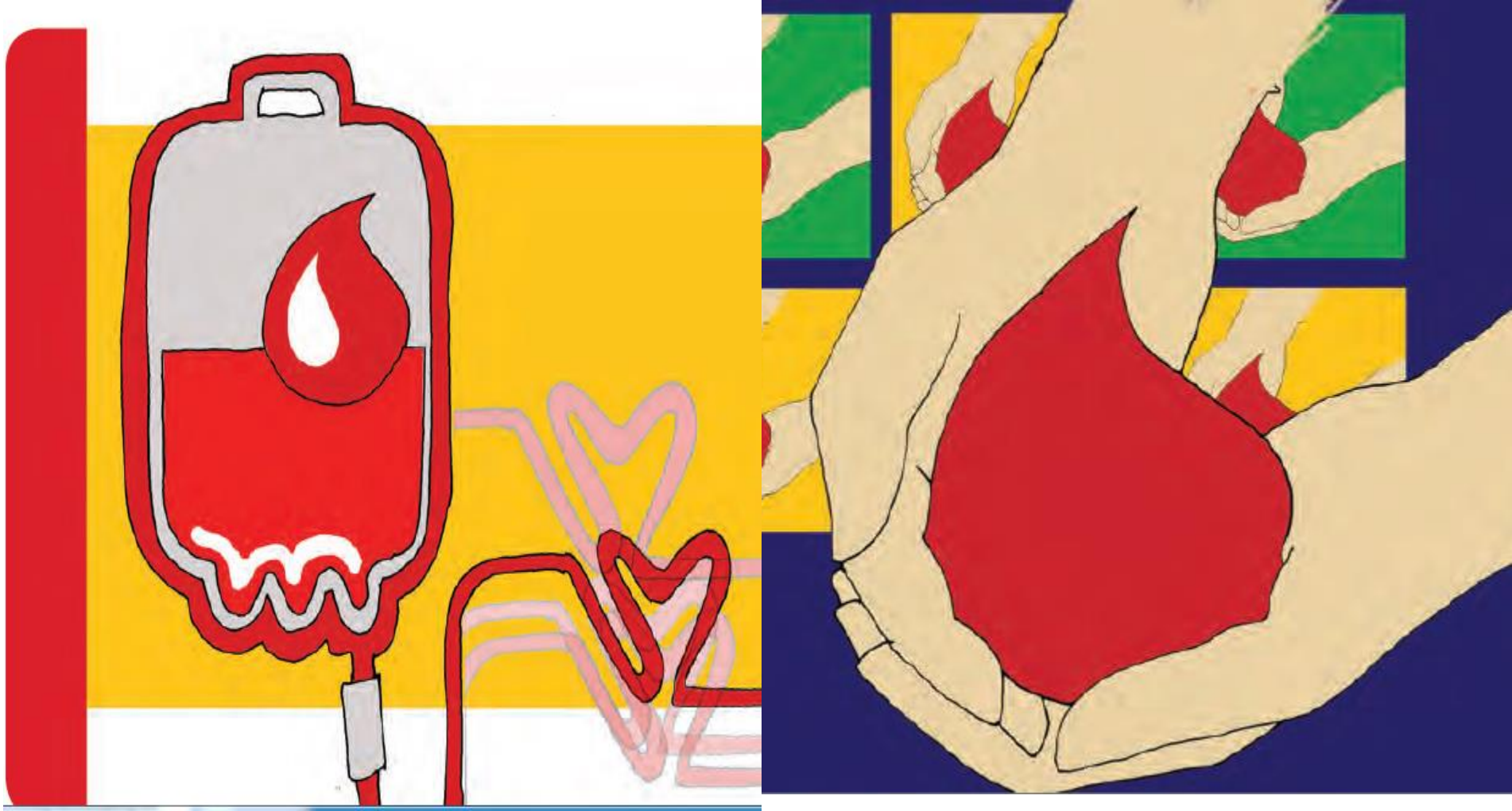
# BTS-Policy & structure



# Voluntary unpaid donations in SEAR

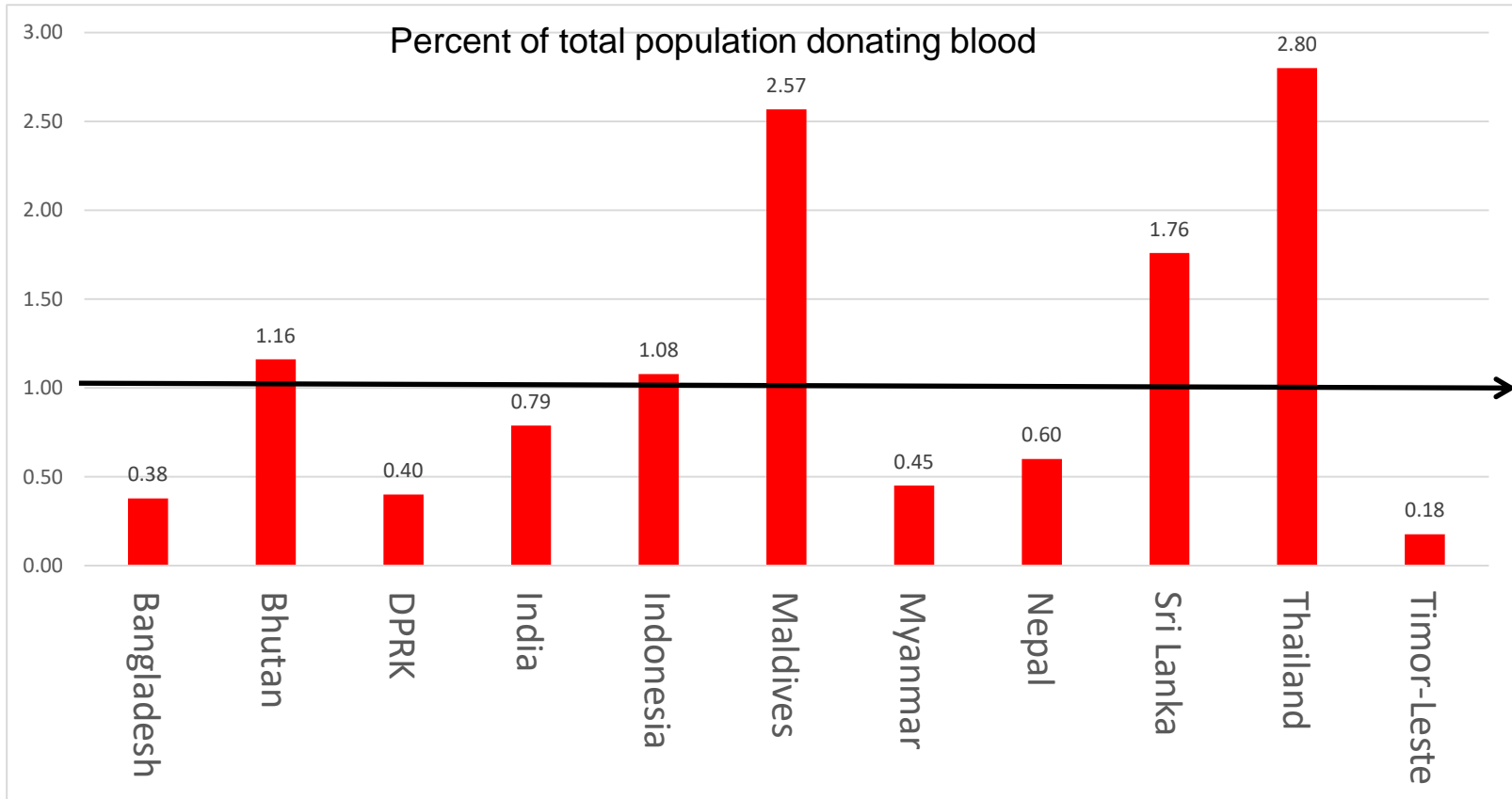


Several social myths continue to hamper not only voluntary blood donations....



**.....but also blood transfusion acceptability**

# Ideally 1-3% of total population should donate blood to fulfil the need of blood



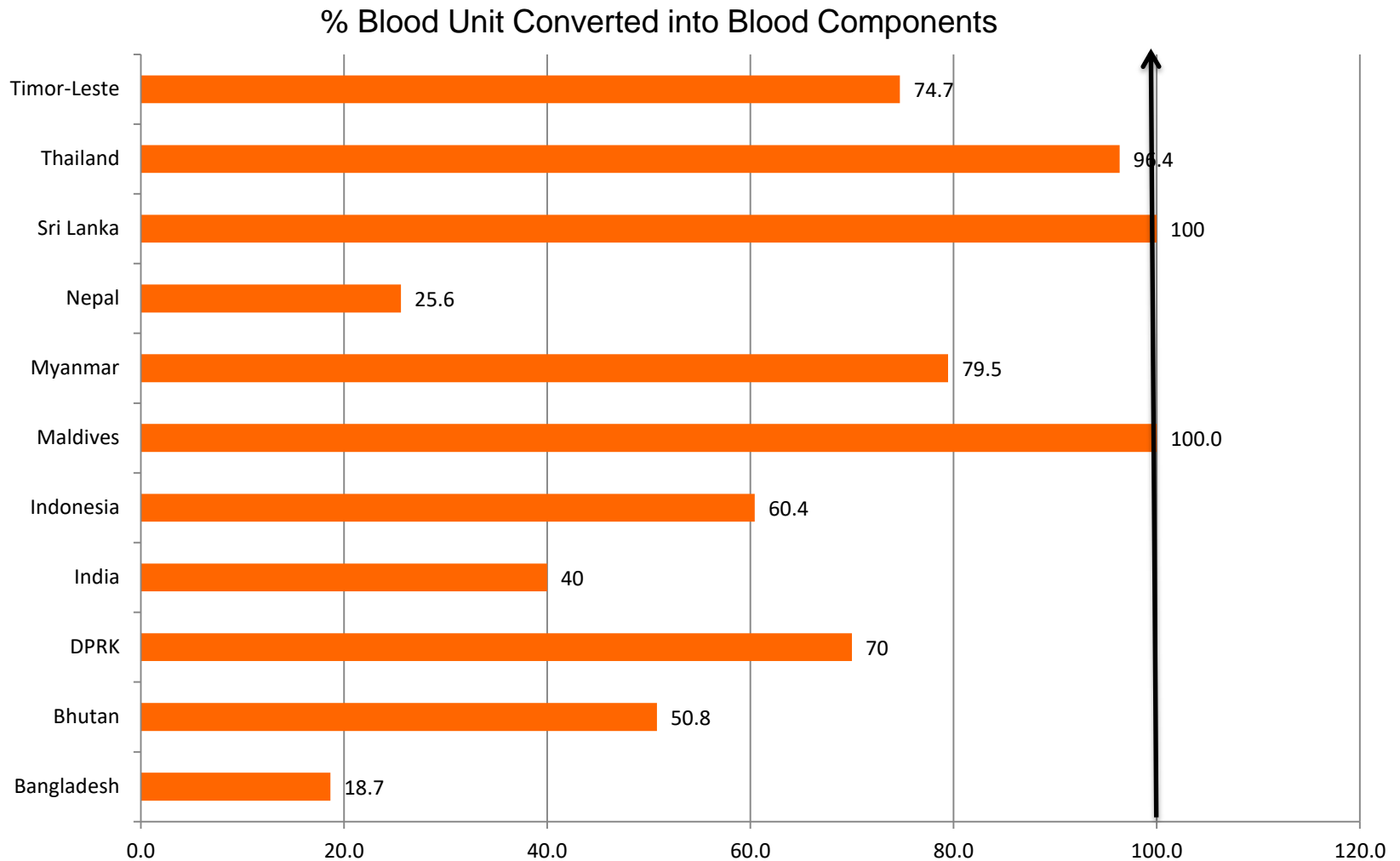
# Screening of Blood for Transfusion Transmitted Infections

Prevalence of TTIs in blood donations in SEA Region

	HIV 1+2	HBV	HCV	Syphilis
Median	0.051	0.322	0.232	0.163
(Min-Max)	(0 - 0.290)	(0.060 - 2.420)	(0.001 - 0.510)	(0 - 0.830)

Quality assurances of the testing and supply of reagent / kit for testing TTI's???

# Blood units converted into blood components



# Overall Constraints/ challenges of Blood transfusion services in SEAR

- Diversity among all SEAR countries in terms of size of the country, population, blood collection, types of BTS, presence of national blood policy, and existing regulations.
- Inadequate Implementation of National policies, poor planning, lack of funds and coordination between agencies.
- There are inadequate numbers of trained staff and poor infrastructure.
- Legislation and regulation not in place to control the system.
- Linkages of BTS with health services
- Data management and information system

# Overall Constraints/ challenges of Blood transfusion services in SEAR

- Though SEAR countries are screening blood for TTIs quality control system of screening is not in place in some centres..
- Supply of kits is erratic. Procurement of good quality equipment and reagents is not regular.
- Countries do not have adequate facilities for separating blood into its components to use it more rationally. In SEAR only 47% blood is converted into components.
- Blood is mainly used for trauma cases, obstetric complications (delivery related complications), childhood anemia, and surgeries. Better timely clinical management can avoid need of blood transfusion. ....health system strengthening
- Hemovigilance is almost non existent : long tern implications of blood transfusion unknown



# Role of WHO

Advocacy and technical support for strengthening blood transfusion services

- ① Theme of World Health Day in year 2000: '**Blood Saves Lives. Safe Blood Starts With Me**'.
- ① WHO-Global strategy(2000) for safe blood was developed to support reducing global burden of diseases due to unsafe blood transfusion.
- ① WHO has provided technical assistance in implementation of global strategy, developing national policies, guidelines on norms and standards, legislation on blood transfusion and safety.
- ① WHO has helped member states in developing partnerships and international collaborations.



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### World Blood Donor Day, 14 June 2016: "Blood connects us all"



World Blood Donor Day  
Blood connects us all. 14 June 2016

The theme of this year's World Blood Donor Day is "Blood connects us all".

It focuses on thanking blood donors and highlights the dimension of "sharing" and "connection" between blood donors and patients. In addition, we have adopted the slogan "Share life, give blood", to draw attention to the roles that voluntary donation systems play in encouraging people to care for one another and promote community cohesion.

The campaign aims to highlight stories of people whose lives have been saved through blood donation, to motivate regular blood donors to continue giving blood, and motivate people in good health who have never given blood to begin doing so, particularly young people.

[Blood Transfusion safety](#) 

[World Blood Donor Day 2016: Blood connects us all](#) 

 [FAQs on Blood Donation](#)  
 pdf, 6.28Mb

# Challenges we need to confront.....

- Governance
  - Policy
  - Programmatic
  - Capacity
  - Financial
- Community mobilization
- Health System strengthening: universal health coverage
- International collaborations

# We aspire for.....

- Ensuring access to a safe and sufficient blood supply
- Achieving 100% voluntary blood donation
- Ensuring 100% quality-assured testing of donated blood
- Optimizing blood usage for patient health
- Developing quality systems throughout the transfusion chain
- Strengthening the workforce
- Keeping pace with new developments
- Building effective partnerships



Thank You