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アジア諸国の献血制度の
構築と普及に関する研究

平成26-28年度 総合研究報告書

研究代表者 宮崎 泰司

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アジア諸国の献血制度の構築と普及に関する研究

宮崎 泰司、野崎 慎仁郎、福吉 潤、瀧川 正弘

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アジア諸国の献血制度の構築と普及に関する研究
(H26-地球規模 A-指定-001)

主任研究者：宮崎泰司 国立大学法人長崎大学原爆後障害医療研究所原爆・ヒバクシャ医療
部門血液内科学研究分野・教授

研究要旨

WHO 世界保健機関では、2020 年までに全ての国が 100%献血を実施し、原料血液を確保することを求めているが、開発途上国を中心に未達成の国が多い。我が国では 1964 年のライシャワー事件をきっかけに、政府閣議決定以降、日本赤十字社を中心として献血制度と血液需給システムが整備され、輸血用血液製剤は 1974 年に、血漿分画製剤は 1990 年に、原料血液を献血による自給を達成した。当時、我が国は開発途上国であったといえるが、社会啓発と教育によって献血制度を構築普及できるという我が国の経験は、世界各国へモデルとして提示できるものである。

本研究の前身として、平成 23 年度から 3 年間で、カンボジアにおける献血活動の支援を行い、若者の代表である大学生を中心とした献血活動の推進に一定の成果を上げてきた。そこでカンボジア以外の国での献血活動を推進するためアジア諸国の献血活動担当者を招聘して国際会議を開催し、各国の献血の実態を発表してもらい議論を交わした。その結果、若者を中心として献血活動を推進するというコンセプトについては同意が得られるものの、それぞれの国において輸血製剤の準備状況や献血活動の実施には様々に異なる問題点のあることが明らかとなった。この会議を通じて得られたことは、まず、こうしたアジア諸国の献血活動に関する意見交換を重ねていくことが重要であり、そこでの議論を基にして、本研究班の献血活動支援を広げていくことが適当と考えられた。

こうした方針を更に発展させ、アジア諸国における献血を一層推進するため、本邦、並びにカンボジアでの経験をアジア諸国で共有すると共に、献血に関するそれぞれの国の現状、並びに問題点を国も枠を超えて共有し、解決策を共に考えていくことが重要と判断した。これを達成するために、2014 年度より、カンボジア、ベトナム、マレーシアにおいてアジア諸国の献血担当者による国際会議を計 3 回開催した。これらの会議においてカンボジアでの学生による一斉献血活動を紹介すると共に、リピータードナーの確保、ドナーケアの重要性、walk-in donor の問題点、新興感染症に対する対応など安全な献血を確保するための方策、を軸として各国の状況の報告と議論を実施した。それぞれの問題に対して各国の対応は様々であり、国の状況などもあって問題への対応も多様であることが明らかになった。また、三回の国際会議を通じて、アジアでの献血活動推進のために各国の献血担当者間でネットワークを構築することが重要であると考えられた。

研究分担者

- (1) 野崎 慎仁郎・長崎大学国際連携研究戦略本部 教授
- (2) 福吉 潤・株式会社キャンサーズキャン代表取締役
- (3) 瀧川 正弘・東京都赤十字血液センター 献血推進部 課長

A. 研究目的

我が国の 1970 年代及び 80 年代の献血制度の構築と普及に関する経験とノウハウ、また、カンボジアモデルを完成させ、周辺国に両方の経験を伝達していく。以って、開発途上国における献血制度の普及を促進するという国際貢献を図っていくことが本研究の目的である。これまでの前身の研究においては、当初、我が国

の献血活動発展に関する知識、経験をそのまま伝え、それを利用してもらうことで開発途上国の献血活動を推進させられると考えていた。しかし、カンボジアにおけるパイロットプロジェクトを通じて、当事国における事情に合わせてそれぞれの献血ムーブメントをサポートすることの重要性が明らかとなった。すなわち、「知識の供与」ではなく、我が国が経験したプロセスの伝達こそが重要ということである。こうした活動は WHO の目標である Voluntary non-remunerated blood donor (VNRBD) による 100%献血達成に資するものである。

本班では、アジアを中心とする開発途上国での献血思想の普及確立がひとつの活動目標であるが、そのために平成 26 年度から 28 年度までの 3 年間で、アジアを中心として各国の献血担当者が参加する献血活動に関する国際会議を計 3 回開催した。これらの会議に於いて各国が抱える様々な問題、献血活動の活性化への取り組み状況を発表、議論し相互の理解の深化を図った。

B. 研究方法

本研究の主要計画は以下の 3 点を目標として実施される。

1. カンボジアにおける大学献血キャンペーンモデルの定着化を図る。
2. カンボジア王国献血思想普及 5 年 Action Plan の策定に着手する。
3. アジア周辺国を巻き込んだ国際会議やワークショップを開催し、モデルケースの伝達をする。

ここにあげた「3.」をさらに推進するため、アジアを中心に 8 カ国および WHO が参加した献血活動に関する国際会議を平成 26 年度より計 3 回開催した。第一回目は各国の現状を共有すると共に、カンボジアでの学生献血運動の高まりの報告を目標とした。第二回目はリピータードナーの確保を中心に議論すること、第三回目は製剤の安全性確保、特に感染症に対する取り組みを一つのテーマとして議論することを目標とした。

第一回目の会議はプノンペン（カンボジア）で

実施し、マレーシア、ラオス、フィリピン、ベトナム、カンボジア、オーストラリア、日本の 7 カ国が参加した。第二回目の会議はハノイ（ベトナム）の国立血液学・輸血研究所にて開催し、マレーシア、ラオス、フィリピン、ベトナム、カンボジア、シンガポール、ドイツ、日本の 8 カ国が参加した。ドイツはラオスの献血活動をサポートしている。第三回目はクアラルンプール（マレーシア）で開催し、マレーシア、ラオス、フィリピン、ベトナム、カンボジア、タイ、日本の 7 カ国が参加した。

これらの会議開催、並びに研究においては、当該国政府及び献血担当部門、WHO との連携を密にして進めた。

C. 研究結果

上記に記載したテーマについて様々な意見交換がなされると共に各国の現状を共有した。3 回の会議で発表された各国の概要を以下に記載する。

(1) カンボジア

人口 1500 万人のカンボジアにおいて毎日必要とされる血液製剤は 200 単位程度と報告された。これは本邦と比較すると極めて少量である。国立輸血センターと地域のセンター（21 カ所）において献血が実施されている。VNRBD の占める割合は 31%程度でありこの 3 年間で大きな変化はなかった。それ以外は輸血を受けた家族が献血者を準備して対応する「family replacement donor (FRD)」による献血である。2014 年において VNRBD ドナーの HBV 感染率は 38.47%、FRD では 69.49%に上っており、VNRBD の安全性がより高い。輸血後のレシピエント HBV 感染症は 5.95%と極めて高く、様々な活動を通じて VNRBD の推進を図る必要がある。国民割合では献血ドナーが 0.33%（昨年と同じ数字）であり、WHO が目標とする数値には達していない。現在、若者を中心的なターゲットとし VNRBD 推進活動をしている。また、2013 年から 2017 年にかけての献血推進に関する国家戦略プラン

(National Strategic Plan) が実施されており、当班の目的の一つであるカンボジアにおける献血普及の Action Plan が実行されていた。

(2) マレーシア

マレーシアは2900万人の人口で、15才未満が25%程度を占め、65才以上はわずか5%と、献血可能人口比率が極めて高い国である。国内には国立血液センターは一カ所だが、130あまりの保健省管轄病院があり、そのうち120病院が献血センターを有している。30歳代以下の若いドナーが大半を占め、順調に献血活動が進んでいる。現在のFRDは1%以下になっており、ほぼ、VNRBDを達成しつつあると言えるだろう。しかし、血液製剤の必要量は年に6%程度増加しているものの、献血ドナーの増加率は3%程度と乖離しており、ドナーの一層の確保が今後の問題点とされた。ドナーの約60%はリピータードナーであり、マーケティングの手法を取り入れて様々なメディアを通じた情報を提供すると共に、「教育とコミュニケーション (Education and Communication)」をテーマとして複数回献血ドナーを確保する方針をとっている。一方で、サラセミアなど多くの赤血球輸血を必要とする患者への対応に苦慮していること、血液製剤の安全性問題(感染症)への対応ではデング、チクングニア(chikungunya)、MERS、ジカ熱などの発生とその対処が最近の問題であるとされた。感染リスクに応じたドナーへの質問票、献血地域の選択、さらに行政との連携による感染症そのものへの対応が重要と指摘した。

(3) ラオス

ラオスは山間の国家であり、地形的に国内の移動(人、血液製剤)に考慮すべき点がある。1995年よりラオス赤十字の輸血部門が輸血プログラムを実行しており、国立輸血センター(NBTC)1箇所、地域の血液センター13箇所、血

液貯蔵部として17の地域病院と6の軍隊病院がある。2014年は献血の53%程度をNBTCで採血した。献血車による採血やシンガポール赤十字の支援を受けた職員教育、高校生、大学生の教育を行っている。VNRBDは90%を超えており、ここ数年で順調に増えてきている。カンボジア同様に”Youth club”として学生を中心に若手ドナーのリクルートと献血活動の活性化に力を入れているが、人口の増加とともに血液製剤の必要性も高まっており、献血のさらなる推進が必要である。2015年にはVNRBD、replacement donorによって36,635名から献血がなされていた。これは国民の0,86%にあたる。この数字は2011年の0,45%から徐々に増加している。複数回献血は約56%で、学生が献血者のやはり56%を占めており、本邦の献血者年齢分布とは大きく異なっていた。Action Planに基づいての活動芽行われているものの、医療状況の進歩や人口増加に伴う血液製剤の需要が増大しており、今後国民の1%がドナーとなることを一つの目標にし、2016年からの10年計画が進行中である。

(4) フィリピン

7000以上の諸島からなる国家で、9500万人がそこに暮らしている。そのため、献血活動、血液の製剤化と分配に独特の問題を抱えている。国家が中心となって保健省が献血を推進しており、2006年8月までに私的血液バンクは閉鎖された。現在はVNRBDを100%達成しており、赤十字社が中心となって献血活動を推進している。若者を中心にリーダーとサポーターのグループ(1名+43名)を作り、末端までの献血思想の普及を図るなど、工夫がみられる。献血活動では健康省、フィリピン赤十字、フィリピン血液共同協議会(Philippine Blood Coordinating Council)の三者が協力して活動を行っているが、新たにNational Council for

Blood Services (NCBS)組織の基で活動がなされている。多数の島々からなる国家のため、血液バンクは一般病院にも設置される場合があり、全国で 607カ所であった。地理的問題への様々な対応が行われていた。2015年には全体で 38万単位を超える血液製剤が使用されていた。

(5) ベトナム

ベトナムは 9200万人の人口に対して、国立センター1カ所、4カ所の広域血液センター、10カ所の地域血液センター、60カ所の病院血液センター、1カ所の赤十字センターによって献血活動を行っている。行政による管轄が中心であり、赤十字の活動は他と比較して高くない。しかし、ベトナムにおいても献血活動は伸びてきており、人口の1%を超える人が献血を行う状況になっており、VNRBDは献血の90%を超えている。国家の人口構成を反映してドナーの60%は24才以下、全体の92%が34才以下と極めて若く、当面、ドナー人口は確保されている。しかし複数回ドナーは31%と決して高くはないため、今後の血液製剤に対する需要の伸びを考えると対応が必要である。

ベトナムでの献血活動の特徴として Massive blood donation day として多数者からの献血を実施する「特別日」を年に数回実施している。これは、血液が不足しがちな時期への対策として実施されており、様々なメディアを動員して実行されている。一日に400名を超える献血を一カ所で達成するもので、一定の成果があると報告された。

2015年には96.9%がVNRBDとなり、100%達成まで近づいてきている。ドナー年齢は低いものの、今後は複数回ドナーの確保が必要である。

また、血液製剤の運搬や貯蔵の問題で十分な対処ができない地域では”Walk-in donor”と呼ばれる制度を取っていることが示された。これは、

あらかじめ献血車として適するかどうかを検査しておき、その地域で血液製剤、特に赤血球製剤が必要となったときに依頼して血液を必要としている病院に出向いて頂き、ドナーとなるものである。ただ、ドナー候補者のその場での検査は実施されていないようで、十分な製剤の安全性の確保、遡及調査への対応などなど、本邦で実施されている血液製剤の安全性担保レベルには達していない可能性もあった。ただ、こうした独特の献血システムを有することが明らかとなり、各国での血液製剤確保の対応にも大きな幅があることが明らかとなった。

(6) シンガポール

シンガポールでは人口比2%程度が献血ドナーとなっているが、65才以上の人口が増加するに従って血液製剤の需要が毎年増加している。複数回ドナーは39%程度で、その増加を目指している。一方で国全体では様々な分野でボランティアとしての活動呼びかけられるようになっており、そうした意味では献血に対する意識が希釈されてしまっている。そのため、献血意識の向上、ドナーにとっての献血しやすさの確保、ドナーへの感謝を伝える、ドナーを献血推進活動に巻き込むといったマーケティング戦略を採用している。アジア諸国の中では極めて進んだ献血システムを構築しているが、本邦と同じく高齢化問題を抱えており、対応を考え始めていた。

(7) タイ

タイは第3回目の会議に初めて参加した。人口6570万人、国立血液センター(1カ所)、地域血液センター(12)、160のサービスブランチで献血、血液製剤を取り扱っている。ドナー情報の中央管理、若者を中心標的としたキャンペーンなどで、国民の3.5%がドナーとなっている。しかし、全体の56%は地域の病院からの血液製剤の要求に対して

完全には血液を供給できておらず、今後の問題とされた。

平成 28 年度会議のサマリー

D & E. 考察及び結論

当班の活動としてアジア各国に参加を呼びかけての献血活動の会議によってアジアにおけるそれぞれの国の献血状況が明らかになった。三回の国際会議は献血担当者にとって大変貴重な情報交換の場であったと言える。国の置かれている状況によって、それぞれに異なる問題点、それに対する取り組みが見られており、また、三年を通じて国毎にそれぞれの進展もあった。こうした会議での議論の中から出てくる新たなアイデアが、それぞれの VNRBD 達成への対応策を作り上げる一助となることを期待している。国を超えての情報共有、問題解決への議論は極めて重要である。

シンガポール、タイなど、全てに参加出来ない国もあったが、献血担当者間のネットワークが構築された意義は極めて大きい。こうした会議を定期的で開催し、VNRBD 達成とその維持に向けた地道な活動の現状、新たな取り組みなど、国を超えての情報交換はどの委員からも必要であるという意見であった。

研究班としては、カンボジア、ベトナム、マレーシアとこの3年間で活動範囲を広げてきたが、それも意義のある点であった。

F. 健康危険情報

(総括研究報告書にまとめて記入)

G. 研究発表

なし

H. 知的財産権の出願・登録状況(予定を含む)

なし

資料 1

平成 26 年度会議の資料

資料 2

平成 27 年度会議のサマリー

資料 3

Asian Meeting for self-sufficiency in blood and blood product based on Voluntary Non-remunerated Donation (VNRD)

24 -25 November 2014, Phnom Penh, Cambodia

Issues and challenges

Universal and timely access to safe blood and blood products and their appropriate use is an essential component of health-care provision. Governments are responsible for national health systems and therefore for the safety, availability and equitable distribution of these products. This responsibility encompasses the establishment of an effective national blood system that is integrated into the national health system, stewardship of donated blood and the blood products derived as a national resource, protecting the health of blood donors and recipients, and ensuring the safety, sufficiency, security and accessibility of supply. However, many countries are still facing challenges in making sufficient supplies of blood and blood products available and sustainable, while also ensuring their quality and safety due to known and emerging threats to public health. Consequently, a large number of patients who require life-saving transfusion therapy still lack access to safe blood and blood products.

Global concerns

Concerns about global blood safety and availability were first raised in 1975 when, in resolution WHA58.72, the World Health Assembly (WHA) urged Member States to promote the development of national blood services based on the voluntary non-remunerated blood donation and to take other actions necessary to protect and promote the health of blood donors and of recipients of blood and blood products. Resolution WHA58.13, resolutions of WHO Regional Committees and The Melbourne Declaration on 100% Voluntary Non-Remunerated Donation of Blood and Blood Components further defined the guiding principles and essential elements in the development of sustainable national blood system that could ensure access to safe blood and blood products as part of universal health coverage.

In 2010, the World Health Assembly deliberated on challenges to the availability, safety and quality of blood products and defined self-sufficiency in the supply of safe blood and blood products based on voluntary non-remunerated donation, and the security of that supply, as important national goals to prevent blood shortages and meet the transfusion requirements of the patient population. Resolution WHA63.12 urged Member States "to take all necessary steps to establish, implement and support nationally-coordinated, efficiently-managed and sustainable blood and plasma programmes according to the availability of resources, with the aim of achieving self-sufficiency". In this context, self-sufficiency means that the national needs of patients for safe blood and blood products, as assessed within the framework of the national health system, are met in a timely manner and that patients have equitable access to transfusion services and blood products.

Despite some successes, in many countries self-sufficiency is not yet a reality. Although it has been recognised that the most robust and safe blood system is based on VNRD, it is a reality that family/replacement donation are still practiced in some regions due to lack of development of programme for VNRD. The weakness of family/replacement donation system is that it puts the

responsibility for the provision of blood on individuals rather than on the national health system, and therefore may lead to coercion and hidden payment which often cause undue risks to patients and harm to the donors. In the long term, family/replacement donation systems will be unable to provide safe, sufficient and sustainable national blood supplies to ensure equitable access for all patients. Such systems will inevitably act as a barrier to enabling national blood systems to develop **appropriately alongside countries' overall health systems.**

Towards self-sufficiency in safe blood and blood products

The implementation of a policy for self-sufficiency in blood and blood products generally follows a stepwise progression, from whole blood to blood components for transfusion and further to PDMPs produced by plasma fractionation. Countries may set different timelines in achieving the goals of self-sufficiency in the supply of blood and blood products from VNRD and ensuring the security of that supply, depending on the state of development of their national health system. Countries that have already established policies and systems to achieve self-sufficiency can serve as models by demonstrating the effectiveness of policies, strategies and mechanisms that should be supported and implemented in other countries.

To support countries in implementing resolution WHA63.12, WHO has launched a new initiative on self-sufficiency in safe blood and blood products, based on VNRD. In 2011, WHO organized an expert consultation to analyse factors influencing the global implementation of self-sufficiency, including safety, ethics, security and sustainability of supply, trade and its potential impact on public health, and availability and access for patients. The consultation also provided policy guidance on strategies and mechanisms for achieving self-sufficiency and made recommendations to national health authorities and WHO. These were published in an Expert Consensus Statement on achieving self-sufficiency in safe blood and blood products based on voluntary non-remunerated blood donation. In accordance with these recommendations, WHO commissioned the preparation of a report, Global Blood Safety and Self-Sufficiency for Safe Blood and Blood Products.

Asian Meeting for self-sufficiency based on Voluntary Non-remunerated Donation

WHO, Cambodian National Blood Transfusion centre and Nagasaki University was collaborating together to expand the participation of youth in voluntary non-remunerated donation since 2011 and had a significant progress through the campaign programme done by students of universities in Phnom Penh. Last year, we could successfully implemented a national campaign among 7 universities in Phnom Penh. To expand the progress of our efforts for voluntary non-remunerated donation, we will organize the meeting for information and experience sharing among ASIAN countries.

Objectives of the meeting

1. To share experiences on different strategies and mechanisms for working towards self-sufficiency in safe blood and blood products based on VNRD.
2. To review evidence, gaps, challenges and trends in donation, safety, ethics, access, sufficiency and self-sufficiency in blood and blood products.
3. To identify the need for priority actions to achieve this goal at national, regional and global levels.

Expected outcomes of the meeting

1. Recognition of the roles and responsibilities of national health authorities and national partners in achieving self-sufficiency in safe blood and blood products as part of universal health coverage.
2. Elaboration of national systems, strategies, mechanisms and resources that can contribute to the achievement of self-sufficiency in safe blood and blood products based on VNRD.

Organized by

Jointly organized by National Blood Transfusion Centre, Ministry of Health of Cambodia and Nagasaki University, Japan, Ministry of Health, Labour and Welfare of Japan, WHO Representative Office in Cambodia, Australian Red Cross Blood Service and Japanese Red Cross.

Participants

3 to 5 representatives of each Asian countries including Ministry of Health, Red Cross and related organizations

Provisional Agenda

1st day

8:30 am	Registration
9:00 am	Opening ceremony: (30 min) <ul style="list-style-type: none">• Welcome remark by Dr Hok Kim Cheng, Director of NBTC, Cambodia• Welcome remark by Prof Yasushi Miyazaki, Nagasaki University• Remark by Dr Dong Il Ahn, WHO Representative in Cambodia• Opening speech by Secretary of state, Ministry of Health
9:30 am	Group photos
9:40 am (15' presentation and 5' Q&A)	"Collaboration between NBTC and Nagasaki University" Dr Jun Fukuyoshi, Japan
10:00 am	Coffee break
10:15 am (20' presentation and 10' Q&A)	"Towards self-sufficiency in blood and blood products based on VNRD: Global status, challenges and strategies" Dr Sek Mardy, Technical Officer for Transfusion Safety, WHO in Cambodia
10:45 am (20' presentation and 10' Q&A / country)	"Current Situation of blood safety in Cambodia, Challenges and strategies" Dr Hok Kim Cheng, NBTC Director
11:15 am (30' presentation and 15' Q&A)	"Voluntary blood donation among youth in university - Cambodian model" Representatives of 7 leading universities in Phnom Penh

12:00 pm	Lunch
1:30 pm (15' presentation and 5' Q&A / country)	Case Study in Asian Countries; "Voluntary Blood Donation & Current situation of blood safety in Asia" Malaysia Lao PDR Philippines Thailand Vietnam Australia Japan
3:30pm	Coffee break (15 min)
5:30 pm	Adjourn of the 1 st day

2nd day

8:30 am	Registration
9:00 am	Plenary Discussion of experiences and lessons learned from the experiences in Asian countries Panellist: Representatives of countries
11:00 am	Coffee break
11:30 am	Future collaboration among Asian countries for self-sufficiency based on Voluntary Non-remunerated Donation (VNRD) Chaired by Prof Shinjiro Nozaki, Nagasaki University
12:00 pm	Closing address: <ul style="list-style-type: none"> • Prof Yasushi Miyazaki • Dr Hok Kim Cheng, • High level figure from the MoH
12:30pm	Lunch



**THE 2ND ASIAN MEETING FOR SELF-SUFFICIENCY
OF BLOOD AND BLOOD PRODUCTS
BASED ON VOLUNTARY NON-REMUNERATED DONATION**

SUMMARY

November 9-10, 2015

National Institute of Hematology and Blood Transfusion, Vietnam



**THE 2ND ASIAN MEETING FOR SELF-SUFFICIENCY
 OF BLOOD AND BLOOD PRODUCTS
 BASED ON VOLUNTARY NON-REMUNERATED DONATION**

AGENDA

Day 1: November 9, 2015	
9:00 am	Opening ceremony: (30 min) <ul style="list-style-type: none"> Welcome remarks by Prof Yasushi Miyazaki, Nagasaki University Opening remarks by Prof. Nguyen Anh Tri, Director of NIHBT, Vietnam Opening remarks by Prof. Le Quang Cuong, Vice Minister, Ministry of Health, Vietnam
9:30 am	Group photo
9:40 am	Report on past activities By Nagasaki University
	Voluntary blood donation among youth in university – Cambodia model By Eang Rothmony, PharmD, PhD, University of Health Sciences, Cambodia
10:10 am	Global status of blood supply, challenges and strategies By Dr. Sek Mardy, Technical Officer – Transfusion Safety, WHO Representative in Cambodia
10:30 am	Coffee break
10:40 am	Japan’s experience: Measures for future stable supplies in Japan – securing repeat donors By Mr. Masahiro Takikawa, Blood Service Headquarters, Japanese Red Cross
11:00 am	Case studies in Asian countries: “Country reports and their efforts and experiences in increasing blood donor repeaters” Malaysia: Dr. Wool Seong, National Blood Centre Singapore: Mr. Robert Teo Wei Long, Singapore Red Cross Vietnam: Dr. Ngo Manh Quan, NIHBT
12:00 pm	Discussion
12:30 pm	Lunch
1:45 pm	Case studies in Asian countries (continued) Cambodia: Dr. Kimcheng Hok, National Blood Transfusion Center Lao PDR: Mr. Phenthong Banchanthavong, Lao Red Cross Philippines: Dr. Christie Monina M. Nalupta, Philippine Red Cross
2:45 pm	Coffee break
3:00 pm	NIHBT Tour
4:00 pm	Discussion
5:00 pm	Conclusion session for case studies
Day 2: November 10, 2015	
8:30 am	Japanese experience: Marketing strategy development to increase repeaters By Prof. Yasushi Miyazaki, Nagasaki University
8:50 am	Plenary discussion: How to increase blood donor repeaters Topic 1: Communication strategies Topic 2: Donor care activities
10:00 am	Coffee break (15 min)
10:15 am	Plenary discussion: How to increase blood donor repeaters Topic 3: How to maintain blood supply stably? Topic 4: How to retain walk-in blood donors in remote and island areas?
11:25 am	Future collaboration among Asian countries for self-sufficiency based on voluntary non-remunerated donation (VNRD)
12:00 pm	Closing address: <ul style="list-style-type: none"> Prof Yasushi Miyazaki, Nagasaki University Prof Nguyen Anh Tri, Director of NIHBT
12:30 pm	Lunch

SUMMARY OF MEETING

Day 1: November 9, 2015

Opening Ceremony

Welcome remarks

Dr. Ngo Manh Quan welcomed all delegates to the Second Asian Meeting for Self-Sufficiency of Blood and Blood Products based on Voluntary Non-remunerated Donation (VNRD). It was noted that in 2014, the WHO and Nagasaki University had collaborated to hold the first meeting in Cambodia, in collaboration with the Cambodian National Blood Transfusion Center (NBTC). The representatives of seven countries exchanged information on blood donation. This, the second meeting, was being co-organized by the National Institute of Hematology and Blood Transfusion (NIHBT), Ministry of Health of Vietnam and Nagasaki University. The participants, including distinguished officials of the Ministry of Health, were introduced.

Prof. Yasushi Miyazaki noted that it was a great privilege to hold the second meeting in Hanoi, which is being jointly organized by NIHBT, Ministry of Health of Vietnam, Ministry of Health, Labour and Welfare (MHLW) of Japan, the World Health Organization (WHO), the Japanese Red Cross and Nagasaki University. He noted that timely access to blood is a very important issue and self-sufficiency of blood products based on VNRD is highly necessary. Many countries are still on the way to obtaining sufficient products. One of the reasons is the lack of programs for VNRD. Efforts have been implemented since 2011 in Phnom Penh to promote VNRD among youth in Cambodia. This program resulted in great success and the experiences of Cambodia will be presented in this meeting. Campaigns for blood donations among Cambodian students were implemented by students in seven universities in Phnom Penh. This is one of the ways to make VNRD sustainable. In order to share experiences in Cambodia with other Asian countries the first meeting was held in Cambodia. As Dr. Ngo Manh Quan had noted in his introductory remarks, representatives from seven Asian countries participated in the meeting and information was exchanged about the situation in the various countries. The previous meeting had made it clear that there are different situations and problems in each country, but there are also common issues. Networking in Asian countries regarding VNRD is helpful for all to address common issues.

Prof. Miyazaki noted that in this two-day meeting it is hoped that efforts to expand VNRD will be exchanged and valuable discussions will take place.

Opening remarks

Prof. Nguyen Anh Tri, Director of NIHBT, Vietnam, noted that it was an honor to organize and host the second meeting. The efforts of Nagasaki University for giving NIHBT the honor of holding this meeting are highly appreciated. The objective of the meeting is to share experiences. During the meeting the delegates will have a chance to learn about the experiences of Japan and international and local specialists. It is to be hoped that all the participants will join in active discussions on ensuring blood safety in Vietnam and other countries. By organizing this meeting Vietnam seeks to gain further partners in blood transfusion. Prof. Tri expressed his thanks to the Ministry of Health of Vietnam and to the Vietnam Red Cross for their support in organizing the meeting.

Prof. Le Quang Cuong, Vice Minister, Ministry of Health of Vietnam, noted that he was delighted to attend the second meeting. On behalf of the Minister of Health he welcomed all delegates. Ensuring self-sufficiency of blood and blood products is an important challenge for many countries and therefore this meeting is very timely and much appreciated. The Minister of Health assigned responsibility for blood transfusion and hematology to the NIHBT and the first VNRD day was held in Vietnam in 1994. This program has since gone on to achieve tremendous results. Vietnam has developed blood centers in major cities and regional and provincial blood transfusion services.

Blood collection in various forms is being organized, through mobile blood drives and using various large media campaigns, among other measures. Activities have been organized at every level nationally since 2006. Through this conference it is hoped that the sharing of lessons and experiences will help others to achieve VNRD.

Report on past activities

Dr. Jun Fukuyoshi, Nagasaki University team, reported that the first meeting was held in Phnom Penh, Cambodia in November 2014. Universal access to safe blood and blood products is an essential component of healthcare provision. A resolution of the WHO urges member states to take all necessary steps to establish sustainable blood and plasma programs is the aim of achieving self-sufficiency. WHO, Cambodian National Blood Transfusion Center and Nagasaki University have collaborated to expand the participation of youth in VNRD in Cambodia since 2011, and have made significant progress owing to the efforts of university students in Phnom Penh. The meeting in 2014 was held to expand progress on VNRD and to share information and experiences among ASEAN countries to further enhance VNRD. The objectives of the meeting were to share experiences on different strategies and mechanisms for working towards self-sufficiency in safe blood and blood products based on VNRD and to review evidence, challenges and trends in donation, as well as safety, ethics, access, sufficiency and self-sufficiency in blood and blood products and to identify the need to prioritize actions to achieve this goal at national, regional and global levels.

The outcomes of the meeting were the recognition of the situations regarding VNRD of each participating country, exchange of information of national systems, strategies, mechanisms and resources of Asian countries to achieve self-sufficiency in safe blood and blood products based on VNRD, and the establishment of strong unity among participating countries for future collaboration.

Voluntary blood donation among youth in university – Cambodia model

Dr. Eang Rothmony, University of Health Sciences, Cambodia, reported that seven universities in Cambodia had worked together on a campaign to promote voluntary blood donations among youth in universities, titled “Big Challenges for Great Universities.”

The campaign was composed of three main phases. Firstly, prior to the campaign many meetings were held to help promote understanding about the underlying strategy. Surveys were also implemented prior to the campaign and materials were prepared for activities. Entertainment was also planned that would attract youth.

During the campaign, operations were conducted to coordinate and facilitate all processes. Information was provided to blood donors and care provided after donation. Media coverage was also implemented.

After the campaign, meetings were held for feedback and reports were made to university leaders and the National Blood Transfusion Center (NBTC). Awareness was raised through social media and keys for success and challenges were identified. A certificate was given to all volunteers and peer education was provided for volunteers.

The key messages of the campaign were identified as “Youth, humanity and hope,” “Donating blood is saving lives,” “My heart, my blood, my nation,” and “Give blood, give hope.”

In terms of the campaign results, in response to the question “Have you ever donated blood?” prior to the campaign the response rate was only 11%, whereas after the campaign it increased to 23%.

Keys for success of the campaign were support from government and university leadership, the creation of strong teams with clear objectives and strategies, the conducting of education and entertainment activities, the planning of clear objectives and ensuring motivation.

Challenges that remain include feelings of concern among voluntary donors feeling about transparency of blood use, some donors being worried with health problems after donation or being afraid of needles and blood, or discouragement from parents and relatives. There is a general lack of awareness of the importance of VNRD.

In terms of recommendations for future activities, it will be important to increase awareness of the importance of VNRD among youth in other universities to maintain repeat donors, increase transparency in blood use to win public trust, increase the blood service availability for patients in need, and create donor recognition.

In terms of recommendations for future campaigns it is hoped that strong support from university leaders and national leaders will be provided. In addition, good collaboration and coordination between students and existing blood donor coordinators in the university is needed. Another key requirement for future success is “edutainment.” Good budget management based on existing resources is also essential.

“Towards self-sufficiency in blood and blood products based on VNRD: Global status, challenges and strategies”

Dr. Sek Mardy, Technical Officer – Transfusion Safety, WHO Representative Office in Cambodia, noted that the need for blood and blood products is rising. In high and middle income countries the need is driven by increasingly sophisticated medical and surgical procedures. In low-income countries the majority of transfusions are for road traffic accidents, complications during pregnancy and childbirth, and management of trauma and congenital blood disorders.

The WHO has called for increases in voluntary blood donors to save millions of lives: “The best way to guarantee a safe and adequate supply of blood and blood products for transfusion is to have a good supply of regular donations by voluntary unpaid blood donors.”

Every year 108 million blood donations are made globally and approximately half of these are made in high income countries, which account for only 18% of the global population. The blood donation rate is an important indicator for blood availability in a country. There is a marked difference in blood availability between low-income and high-income countries. The median blood donation rate per 1,000 population is 36.8 in high-income countries and 11.7 in middle-income countries. 75 countries report collecting fewer than 10 donations per 1,000 population. The age distribution of blood donors is very important for creating recruitment strategies. Proportionally there are more 18-24 year olds who donate blood in low and middle-income countries than in high-income countries. 73 countries collected more than 90% of VNRD; however, 72 countries collected less than 50% of VNRD. There has been an increase in voluntary unpaid donors by 8.6 million from 2004 to 2012 and there have also been various successes in VNRD, including in Vietnam, which increased VNRD from just one-third of total supplies to 96.2% in just 10 years.

There are many challenges in blood safety and availability. These include: lack of safe blood donors and low donation rates, weak voluntary non-remunerated blood donor programs, discarding of more than five million whole blood/red cells globally per year, stringent donor selection criteria reducing the pool of eligible donors, and an aging donor population impacting blood supply.

In terms of the risk of transfusion-transmitted infections, there is a high risk of transfusion-transmitted HIV and hepatitis B and C in developing countries. There is also limited capacity in processing and poor quality systems, relating to capacity to provide patients with the different blood components they require being limited and the absence of quality systems.

In terms of a response, it is important to improve blood safety and availability. This includes: Establishment of a national blood system with well-organized and coordinated blood transfusion services; collection of blood plasma and other blood components from low-risk, regular, voluntary

unpaid donors; quality-assured screening of all donated blood for transfusion-transmissible infections and systems for processing blood into blood products as appropriate; rational use of blood and blood products to reduce unnecessary transfusions and minimize the risks associated with transfusion; and step-wise implementation of effective quality systems, including quality management, standards, good manufacturing practices, documentation, and training of all staff.

Discussion

Dr. Ngo Manh Quan asked about the results for 2015 that had been achieved in Cambodia through the university-based campaign. Dr. Rothmony responded that the campaign is ongoing and now the original students have graduated they have gone out into the community to further promote donations. New intake students are being recruited to engage in activities and now the program has become self-sustaining.

Dr. Ngo Manh Quan asked about repeat rates in the Cambodia university program. Dr. Rothmony noted that the universities rely on educational activities, because once people have a better understanding of blood transfusion they tend to repeat their donation activities. Therefore education activities are very important and efforts in this area have proved to be very effective.

Dr. Mardy noted that in 2013 when the campaign concluded, it was expected that the number of blood donations from the campaign in 2014 would be higher than 2013. However, the result was that there was no significant increase. A key question, therefore, is how to encourage students to become repeat donors.

Ms. Cecilia Tan from Singapore Red Cross congratulated Cambodia on the success of its efforts. She noted that one of the factors for success is the involvement of various stakeholders. She made a comment about sustainability and ensuring repeaters. In low and middle-income countries the number of young donors is very high, but once they join the workforce after graduation the number of donors reduces to below that of high-income countries. One possible response measure would be to encourage community corporate responsibility. It would be useful if companies could be encouraged to promote blood donations among their employees.

Dr. Truong Thi Kim Dung, Ho Chi Minh Hospital of Blood Transfusion and Hematology, noted that Vietnam has made significant achievements in recent years. Every year about 200,000 units are collected in Ho Chi Minh City, a great majority of which is from students. It is important to conduct blood donation campaigns to encourage students to participate. She asked about efforts to encourage students to engage in blood donation on a daily basis and to continue donating blood after graduating from university. She also noted that in Ho Chi Minh City there is a strategy for voluntary blood donation, which is focused on whole blood.

Prof. Miyazaki noted that in Japan there is a university student club to promote donations, which is based on completely voluntary activities. It is very important to promote education. Prof. Miyazaki noted that Mr. Takikawa would be presenting on this topic later in the meeting. In terms of blood component donation, it is important to educate the population on this topic as it would improve donation efficiency. Donors in Japan are made aware of the importance of blood components. The repeater percentage is much higher in blood component donors. The question of how to promote repeaters is a key theme for this meeting. It is important to exchange information about efforts in each country to promote whole blood donation and blood component donation.

A participant from Hanoi noted that research has been conducted on the barriers to blood donation in universities in Hanoi. It has been found that students are worried about non transparency of blood use. He asked about the type of media campaigns that are likely to be effective to promote donations.

Dr. Rothmony responded that the same concerns existed in Cambodia, because not everyone has access to information about the use of blood donated. Therefore efforts have been promoted to boost transparency. Educational seminars are implemented to enhance understanding about the

importance of blood donation. For media campaigns, Facebook is heavily used, which covers most students. In addition, student days are held, and blood donation is promoted on these days.

Dr. Mardy added to Dr. Rothmony's comment, noting that transparency of blood use has been a significant issue. Next year the focus for the blood service in Cambodia is to establish a committee that will work on efforts to enhance transparency and gain public trust.

Coffee break

Japan's experience: Measures for future stable supplies in Japan – securing repeat donors

Mr. Masahiro Takikawa, Blood Service Headquarters, Japanese Red Cross, noted that securing repeat donors is an important topic for Japan in ensuring stable supplies of blood and blood products. In 1986 400ml donations were introduced in addition to 200ml donations and since that time the proportion of 400ml donations has increased. In terms of the age range of blood donors, the number of donors in their 40s has increased, but the number of donors in their 30s has dropped off significantly. This means that there has been a 22.3% decrease in blood donation among those who were in their 20s ten years ago and who are now in their 30s now. It is important to take action to ensure that there are sufficient donors in the future. A simulation conducted by the Japanese Red Cross shows that if current trends continue there will be a shortage of 0.85 million donors in 2027. The MHLW and Japanese Red Cross have established specific mid-term goals for boosting blood donation. This program is termed "Blood Donation Promotion 2020." This program includes promoting blood donation to persons from their teens to their 30s, promoting blood donation to elementary, junior high and high school students, and promotion efforts to secure repeat donors.

A repeat donor is defined as someone who donates more than twice a year. Efforts to ensure repeat donations include a "Repeat Donor Club," as well as requests by postcard or direct phone calls. The use of phone calls to request donations is used as an effective means of eliminating temporary blood type imbalances. The postcard request method entails significant cost, and measures have been implemented to move to notifications via e-mail.

With regard to the "Repeat Donor Club," blood centers contact club members directly to request blood donations. Club members receive a specially designed donation card and information via e-mail. The Repeat Donor Club office also sends information about events. However, sometimes donors may receive multiple communications via letter, e-mail and phone call, which creates stress for the donors themselves. The new data system, which is scheduled to be put into operation in 2017, aims to streamline operations and prevent multiple communications to donors. This system will contribute to ensuring stable blood supplies in the future.

Discussion

Dr. Rothmony noted that the Repeat Donor Club is a very effective means of securing repeaters and Cambodia is also considering measures to establish a similar club. He asked about benefits of club membership in Japan and what measures are implemented to recruit members. Dr. Miyazaki responded that the incentive to join the club is the management of the donors' blood data and results. Members can access past blood donation data via the internet at any time. Dr. Rothmony asked whether providing information about blood tests raises concerns about recruiting high-risk donors. Dr. Miyazaki noted that this was not the case as screening is conducted.

Ms. Cecilia Tan noted the sharp drop-off in donations between those in their 20s and 30s and asked why this was the case in Japan. She also referred to donor stress caused by multiple communication channels and asked why social media are not more actively utilized. Prof. Miyazaki responded that the stress was caused because the three separate communication methods did not share the same database, meaning that donors were contacted on multiple occasions. This is why

a new system will be introduced by 2017 that will unify the system and ensure that donors are not contacted on multiple occasions. Dr. Fukuyoshi responded to the question about the drop-off in donors between their 20s and 30s. It is assumed that the engagement of the people in their 30s is weak. General social awareness of blood shortages is low and this is a challenge that needs addressing.

A participant from Vietnam asked which method of communication is most effective and also asked about the success rate of these methods of communication. Prof. Miyazaki responded that postcard or letter has a response rate of 30-40%, whereas the phone call method results in a response rate of 70%. However, the phone call method is only used for rare blood groups or to correct a temporary imbalance in blood type needs.

A participant from Vietnam asked about the system for donor care. He asked whether the system is operated by the Red Cross or by blood centers. He also asked about methods to promote repeaters if they do not respond to initial communications, either by mail or phone call. Prof. Miyazaki responded that the blood donation centers are operated by the Red Cross. With regard to requests, if potential donors do not respond to two requests, no further requests are made, in order not to create undue stress for donors.

Case studies in Asian countries: “Country reports and their efforts and experiences in increasing blood donor repeaters”

Malaysia: Marketing strategy for increasing regular blood donors

Dr. Wooi Seong, National Blood Centre, Malaysia, noted that blood donation in Malaysia is by VNRD, with 99-100% of donations being made by VNRD, according to WHO statistics. In 2014 close to 700,000 donations were received and in terms of the proportions of regular and new donors in Malaysia, regular (repeat) donors account for approximately 60% of the donor base. Different states around the nation perform differently and have various challenges. Kuala Lumpur accounts for 25-30% of all donations. The National Blood Centre of Malaysia has seen blood collection volumes steadily rise, from 70,000 donations in 1998 to almost 180,000 donations in 2014. The proportion of repeat and new donors was approximately 50:50 in 2008 and it was recognized that efforts needed to be made to retain donors. Efforts since then have seen the proportion of repeat donors rise to 62% in 2014. One-quarter of all donations are from students. The majority of blood donors have previously been in the 18-24 year group. However, in 2014 there was a shift in age distribution of donors from the 18-24 year group to the 25-34 year group. This demonstrates that recruitment drives and awareness campaigns that were started early in younger year groups translates into greater volumes of donations in older age groups in future years.

Conventional marketing strategies that are used include pamphlets, posters, banners, newspapers, radio and television. Over the years it has been realized that marketing strategies evolve and focus has shifted to activities that educate and raise awareness, which is one of the keys to blood donation marketing strategies. There is a need to inculcate blood donation as a culture and lifestyle and new donors need to be encouraged to become regular donors. It is important to create a pleasant experience before, during and after blood donation. Moves are being implemented to transform from a hospital service to a hospitality-oriented service, which aims to create a positive image of blood donation. There is also a need to engage and collaborate with blood donors and ensure that donation is convenient and accessible for all.

Specific marketing activities that have been launched in recent years include: calling donors by phone, using websites and social media, and creating blood donation mobile apps. Another measure that has been implemented to boost donation is the extension of National Blood Centre opening hours. Blood donation talks are conducted in schools, colleges, universities and offices. Blood donation campaigns are implemented regularly in similar areas. Corporate social responsibility (CSR) is also utilized as a means of encouraging companies to promote donation

among their employees. Celebrities are also recruited to act as figureheads for donation activities, including at such events as World Blood Donor Day. Malaysia has also created Whole Blood Donor Day and Apheresis Week as other events, which are timed to coincide with seasons when blood stocks are usually running low. In terms of CSR, one of Malaysia's largest malls has agreed to provide space for a blood donation suite within the mall, which is run by the National Blood Centre. This provides convenience to shoppers. Also convenient for donors is the blood donation bus, which attracts further donors. Educational and study tours to the National Blood Centre are also promoted.

Singapore: Increasing donor retention through marketing initiatives

Mr. Robert Teo, Blood Donor Recruitment Programme, Singapore Red Cross noted that the blood donor population makes up less than 2% of Singapore's residential population, which is a challenge for the recruitment program. First-time donors make up 29% of the donor pool, with repeat donors accounting for 39% of all donors. Demand for blood and blood products is likely to increase in the future, as the society of Singapore ages. More than 22,000 units of blood will be needed annually by 2030. In terms of the total number of donors, there were 70,824 donors in 2013 and 68,868 donors in 2014. However, if the first-time donors in 2013 could have been retained this would have ensured an increase in the following year's repeat donors. A key challenge, therefore, is to boost efforts in retaining repeaters.

One of the difficulties in retaining donors is competition with other charities. The number of registered charities in Singapore has risen significantly over the previous decade. Blood donation is also well-established in Singapore and this may lead to a tendency for younger people to consider that blood donation is already successful and be therefore more inclined to support other charities.

Challenges for blood donation therefore include attrition of first-time and regular donors and the crowded charity landscape, in addition to accessibility of blood donation sites. The response to these challenges is to highlight the importance of blood donation through emotional engagement, ensure accessibility of blood donation aligned with donor lifestyle, show appreciation for donors while installing a regular-donation mindset, and engage donors as advocates.

Marketing activities and initiatives include the creation of thank-you videos and printed ads. The purpose of these videos is to achieve emotional engagement and highlight to donors the real-life impact of their donations and highlight to non-donors the need for blood by people like themselves. Another initiative is the issuance of a thank-you card to donors. The purpose of this card is similarly to create emotional engagement and instill a regular donation mindset. This card conveys to donors the appreciation from beneficiaries and reminds them of their next donation date. The card features different beneficiaries, with a mix of circumstances and conditions.

Another marketing initiative aiming to retain donors is to provide giveaways. The purpose of this initiative is to express appreciation to donors and instill a regular donation mindset. This Christmas season a series of fridge magnets will be distributed to donors as a thank you gift. Other seasonal events that are focused on include Halloween, Chinese New Year, Hari Raya and Deepavali, all with the purpose of aligning donation with donor lifestyles and expressing appreciation to donors.

When reaching out to youth donors the Red Cross Connection app has proved to be effective, including message alerts and event updates, as well as a blood-stock impact tracker. The blood-stock impact tracker makes it possible to target specific donors in response to need.

The #Needleface campaign in Singapore is an initiative to create a regional/global success story like the Ice Bucket Challenge. The campaign shows videos of the faces of people when having a needle stuck in their arm for the first time and is intended to create online buzz about the blood donation campaign in Singapore.

Discussion

A participant from Vietnam asked about the Singaporean marketing campaign and the content that is used to persuade donors to donate blood and the way different donors are targeted. She asked which marketing activity is the best one to retain donors.

Mr. Teo responded that emotional engagement is very important, but the content depends on the target audience. For example, in schools, the focus is on youth-friendly language that is not overloaded with medical terms. It is important to tailor content for corporate or religious organizations. The focus on corporate and religious organizations is CSR, namely encouraging these organizations to make a contribution to society by helping with blood donations.

Dr. Seong responded that in the case of Malaysia, media content will depend on the target group. For example, when targeting university students it is important to focus on the fun side of donation. It is important to engage with student leaders. It is also important to use media to dispel concerns about blood donation and make it more accessible.

Ms. Tan asked about the percentage of retention for new donors in Malaysia. Mr. Seong responded that although he did not have the specific figure, the National Blood Centre is working on ways and means of quantifying retention rates, which would provide a good means of evaluating the effectiveness of media campaigns.

Dr. Truong Thi Kim Dung thanked Malaysia and Singapore for their presentations, noting that the two countries are implementing very positive and dynamic messages that are accessible to young people. She also highly evaluated the initiative by Singapore to provide thank-you cards from beneficiaries to donors. The Repeat Donor Club initiative in Japan is also interesting. In Vietnam there are also clubs for repeat blood donors. She asked if there are regular meetings for club members in Japan.

Prof. Miyazaki responded that the virtual donor club connects everyone via mail or SNS. Another initiative is the Action Club, which brings together university students for a major meeting once a year.

A participant from Cambodia asked Malaysia about challenges currently being faced and asked Singapore about the kind of blood products for which there is demand.

Dr. Seong responded that challenges being faced include shortages of blood and it is therefore important to build up strategies to build up blood reserves at seasons when shortages are predicted. Different marketing tools exist and in Malaysia the e-mail method has not proved effective (less than 5% repeaters). It is important to ensure that out of the limited budget available a good proportion of funds is targeted for donor retention, in addition to recruitment. It is important to be creative and innovative and move with the times and technology.

Mr. Teo responded the broad breakdown of blood usage in Singapore is 31% general surgery, 25% general medical, 14% orthopedic, 14% cardiothoracic, 10% hematology, 6% accident and emergency.

Lunch

Case studies in Asian countries (continued)

Cambodia: Country report and efforts and experiences in increasing repeater blood donors

Dr. Hok Kimcheng noted that with a population of approximately 15 million the donation rate in Cambodia is relatively low, with three donations per 1,000 population. The system is in transition,

with one public National Blood Transfusion Centre (NBTC), 21 public provincial centers and one hospital blood bank. The five-year national strategic plan is based upon a comprehensive blood system assessment (2011/12) and provides a system-wide technical framework for blood program delivery. The National Blood Program is guided by a five-year national strategic plan 2013-17.

In terms of hospital and patient blood management, key achievements in 2013 and 2014 include the formulation of national clinical guidelines, and training for trainers, as well as the transfer of programs to local ownership.

In terms of community and donor motivation, key achievements in 2013 and 2014 include the formulation of a national strategy for donor recruitment, the production of consistent branding and signage, as well as demand and supply planning and mobile collection planning.

In terms of creating a nationally coordinated blood service, an 18-month lab plan for testing, components, quality, cold chain, equipment and staff training have been implemented, and automated testing platforms have been selected. Efforts have been made to improve laboratory work flow, including serology and samples. A new facility funded by US PACOM has opened in 2015 and a national center in Phnom Penh and two regional centers in Kampong Cham and Siem Reap are also due to be opened.

In terms of key indicators, VNRD across the entire country stood at 33.6% in 2014, down slightly from 2013. The regular donor rate stood at 10%. Infectious disease markers are gradually reducing, going down from 8.4% in 2012 to 6.1% in 2014.

Blood demand is increasing year by year, by approximately five to six percent. With regard to VNRD management and strategy, the objectives are to work with provinces to identify barriers to VNRD and find solutions. In addition the strategy calls for the establishment of provincial voluntary blood donation steering committees. These committees will work to convert family replacement donation (FRD) to VNRD and promote VNRD targeted at youth. Another key point in VNRD management and strategy is to incorporate VNRD education into the national education curriculum, including B2C engagement with the Ministry for Youth, Education and Sports.

The NBTC is working to improve transfusion safety, with a focus on donor selection, using revised donor selection guidelines. Pre-donation screening is also being enhanced, with an improved donor questionnaire and staff training. Improved testing algorithms are also being used in the laboratory environment.

A very important current challenge is to recruit and retain VNRD and blood donation campaigns are generally successful in boosting donations when they are implemented. However, the bigger challenge is to secure repeat blood donors. The goal of the NBTC is to achieve a consistent decrease of family replacement donors over time and corresponding increase in VNRD to meet demand. Management activities include stock management, education of NBTC and hospital staff, and education of family replacement donors to return as voluntary donors.

In collaboration with the union of Youth Federations of Cambodia the “Youth contributions to Blood Donation Promote Towards 100% VNRD by 2020” program is to be launched from 2016. A blood donor club will be established in 2016.

In terms of next steps for Cambodia’s blood program, the aim is to continue to implement the strategic plan, identify barriers to implementation, and work with local stakeholders to develop sustainable solutions.

Discussion

Ms. Tan noted that 2020 is five years from now and achieving 100% VNRD will be difficult to achieve in that time. She asked what specific initiatives were being planned to achieve the target of 100% VNRD by 2020 in Cambodia. Dr. Hok responded that strategic plans are reviewed each year.

The mission of the Union of Youth Federations of Cambodia is to promote education on healthcare and healthcare service delivery. Although the plan to achieve 100% VNRD is very ambitious, Dr. Hok noted that it is important to have dreams.

Dr. Seong noted that the statistics that have been shown for Cambodia are very impressive, showing consistent improvement. Dr. Hok responded that demand for blood is increasing every year and the NBTC is seeking to boost donations over the next few years.

Lao PDR: Country progress report on Lao blood services

Mr. Phengthong Banchanthavong, Lao Red Cross National Blood Transfusion Centre (NBTC), reported that the Lao Red Cross National Blood Transfusion service has been carrying out its blood program since 1995, which plays a leading role in providing safe and adequate blood supply. It is fully responsible for blood donor recruitment, retention, collection, processing, testing and supply of blood and blood components to hospitals. The blood program is implemented at one national center, three regional blood centers, 13 provisional blood centers and 17 blood storage units in district hospitals and six military hospitals.

In terms of blood donation in 2014 the NBTC collected 53.16% of the total, with provincial centers collecting 46.84%. Students account for 56.28% of all donations. Of total donations, 65% are made by male donors, significantly higher than the donations by female donors.

An Action Plan for 2014 set a mobile blood campaign target of 35,200, which was narrowly missed (35,017 units). However, in terms of training activities, a total of 119 donor recruiters were trained at the provincial level (supported by Singapore Red Cross), 366 youth were trained from 30 high schools and three universities in Vientiane. In addition, 26 annual meetings with target groups worked to set up a plan and calendar for mobile blood collection.

In terms of donor recruitment and retention activities, annual planning for establishing a plan and calendar for blood donor recruitment is conducted at the central and provincial level. Meetings are held with key focal points to plan activities before conducting mobile blood donation. Blood campaigns are conducted on special days, such as Red Cross Day, World Blood Donor Day and Lao national holidays.

Issues and challenges being faced include: increasing demand of blood supply due to increases in population and development in cities; the need to provide health products and other supporting materials quickly and efficiently; systematic screening of every blood unit; high-quality preparation of blood products; and the need to build infrastructure and energize resource mobilization.

A future plan is to continue to work to improve the health status of the Lao population by providing sustainable access to safe and adequate blood supply; meeting the WHO recommendation of at least 1% of total population donation per year, as well as 100% VNRD; and implementing quality management of blood services at all levels. Other areas of the action plan include strengthening provisional blood centers to provide safe and sufficient blood supply; creating additional blood storage units at the district level; and promoting blood donation via social media.

Discussion

Ms. Tan noted that the number of repeat donors had increased very significantly. She asked how that retention of repeat donors was achieved. Mr. Phengthong Banchanthavong responded that staff are recruited and these staff are well motivated to recruit people, which has proven to be very effective.

Philippines: Blood services in the Philippines – how to increase repeat donations

Dr. Christine Monina M. Nalupta, Philippine Red Cross, noted that the mission of the National Voluntary Blood Services Program is to be a national and efficient networking of blood service

facilities based on voluntary blood donation that will ensure safe, adequate, timely and accessible blood supply and the rational use of blood in the Philippines through advocacy, professional education and research. The service is run under a tripartite organization, consisting of the Department of Health, Philippine Red Cross, and the Philippine Blood Coordinating Council. Blood service facility categories are: blood center, blood banks, blood collecting units and blood stations. The Philippines Red Cross has as its motto: "To become the leading provider of safe and quality blood in the Philippines."

There has been a steady increase in general blood donation. In order to ensure blood safety, centralized blood testing is implemented, including a platform of five TTIs, with nucleic acid testing in the pipeline. The VNRD rate is 84%. In 2014 repeat donations stood at 79.83% of the total.

With regard to the question of how to increase repeat donations, the power of cyber-media, radio and television all need to be harnessed. The Philippines is engaged in partnership with TV/media personalities, who are being recruited as "Blood Governors"

Strategies to advocate and promote VNRD include common strategies, such as letters, phone calls and e-mails, in addition to newer strategies in information and communication technology, such as SMS broadcasts and viral marketing. Viral marketing is the latest craze and has high networking penetration, with a personal touch, with the power to link "friends of friends of friends." On the day that the SMS service went live, more than 380,000 followers tweeted about it. In November a national blood donation drive will again be implemented using this service.

Another strategy is the partnership with colleges and universities titled PLEDGE 25, or otherwise known as the Red Cross Youth (RCY). Under PLEDGE 25 programs members are aged 18-25, who pledge to regularly donate up to four times a year. PLEDGE 25 partners are the Commission on Higher Education, Sanggunian KABATAAN Federation, and the Philippine Association of Colleges and Universities. This is a key project that is used to promote donor recruitment and retention partnership at work.

The RC143 (community) program aims to recruit 1+43 members in every village, school and workplace to mobilize the power of humanity. As RC143 Blood Service Volunteers the members are expected to advocate and recruit voluntary unpaid blood donations, become regular and standby blood donors when needed, organize a weekly village-based voluntary mobile blood donation, and recruit blood Samaritan donors.

A government project is the Advocacy and Promotion of VNRD to use school children as blood donation advocates. The aim of the program is to integrate voluntary blood donation in the curricula of primary and secondary school students.

The Philippines celebrates World Blood Donor Day each year and also organizes a blood donation month. In order to have better recruitment capabilities it is important to gain various types of certification. The Philippine Red Cross has gained ISO9001 certification for its quality management system.

Discussion

A participant from Vietnam asked about the Philippines experience in implementing activities across multiple islands and how disaster response is made. Dr. Nalupta responded that the Philippine Red Cross has 82 blood service facilities, each situated strategically. Although the Philippines is an island country, each region is represented by a Red Cross blood supply station. If there is shortfall in a certain location, the national Red Cross blood inventory system makes it clear which facilities are reaching a critical level.

Dr. Seong observed that RC143 is an important example of community involvement. He noted, however that blood collection is still less than 1%, and asked whether the Philippines is self-sufficient. He also asked about response to disasters and how the system copes. Dr. Nalupta

responded that the Red Cross had a hard time managing its logistics in the immediate aftermath of the typhoon disaster the previous year. It took five days until a blood products/blood bank refrigerator and generator could be provided to the disaster zone, due to space restrictions on cargo aircraft. It was only the Red Cross that had blood facilities in Leyte in the post-disaster environment. With regard to the poor blood collection rate of less than 1%, although there is certainly room for improvement, there are no reports from the government that people are dying due to lack of blood supply.

Vietnam: Self-sufficiency of blood and blood products based on VNRD in Vietnam

Dr. Ngo Manh Quan, NIHBT, reported that blood collection has achieved significant improvements in Vietnam in recent years. The percentage of VNRD is 96.24%. Repeat blood donors are a challenge for Vietnam, and the current proportion of total donors is about 31% for repeaters. TTIs screening is also demonstrating improved results year by year. For example, in 2006 the percentage for HBsAg – HBV stood at around 7%, whereas in 2014 the percentage had fallen to 2.11%.

Before 1994 less than 15% of blood demand was being met and more than 90% of blood was taken from paid donors, with no TTIs screening. In the space of little over 20 years this situation has improved to the current situation today, where over 96% of blood is sourced through VNRD. A national steering committee and stakeholders also take an active role in VNRD activities. The National Steering Committee on VNRD oversees provincial, district and commune-level steering committees, which collaborate with regional, area and hospital blood banks, as well as other institutions, including universities.

In terms of the impact of centralization of blood service, following the establishment of five regional blood centers, 10 area blood centers and 70 hospital blood banks, the rate of VNRD by NIHBT has risen to 98.17% in 2014. Challenges that remain include the need to find solutions to stabilize monthly blood collection. Seasonal campaigns are planned that coincide with festivals and holidays, including the Pink Spring Festival. A nationwide campaign is the “Red Journey,” which is implemented across the country. Other massive blood collection events are held throughout the year, resulting in increases in collection results. Vietnam also holds events on June 14, World Blood Donor Day. Various volunteers are also encouraged to participate in VNRD programs.

In terms of the plan for the future, the overall target for 2020 is to achieve donations from 2% of the population, with VNRD at 100%. This will entail efforts to recruit more new donors and retain donors, establish blood donation laws, organize campaigns, and improve donor services. Another vital factor is to expand collaboration and boost regional and international linkage and exchange.

Coffee break

NIHBT Tour

The delegates toured NIHBT. The delegates were split into three groups, with each group visiting the Department of Recruitment and Planning, the Blood Donation Department, the Blood Component Department and the Blood Screening Department of NIHBT.

Discussion & closing of case study session

Prof. Miyazaki had a question for Dr. Ngo Manh Quan. He noted that Dr. Ngo had detailed specific campaigns at certain times of the year. He noted that in such cases it is likely that there would be huge spike in the space of one or two days and asked how this spike is averaged out.

Dr. Ngo Manh Quan responded that it is at these specific times of the year that severe shortages generally occur. These efforts are also aimed at promoting donor retention. These efforts generally prove effective and help to cover any shortfall and do not usually create issues of stock management.

Dr. Seong and Ms. Tan asked Dr. Ngo Manh Quan about the Pink Spring Festival, noting that there was a significant deferral rate. Dr. Ngo Manh Quan responded that this was due to the sheer volume of donors on the day. Prof. Tri added that prior to 2008 there was a severe lack of blood, particularly around national holiday periods. He noted that the festival was created as a means of promoting blood donations, but blood donation is not the only purpose, nor are people obliged to give blood. The first purpose of the festival is for people to enjoy themselves and also to attract potential donors to the event. Similar festivals are held in regions around Hanoi, which have improved the blood collection situation in regional Vietnam.

A participant from Vietnam noted that the Chinese New Year festival is also held in Vietnam. He asked about the situation in Laos, Cambodia, Malaysia, etc., and whether they have similar challenges at festive times during the year.

Dr. Seong noted that shortages used to be faced during major festive seasons in Malaysia, including Chinese New Year and Hari Raya. This was also compounded by the fact that these festive periods coincide with school holidays. Strategies that have been implemented include forecasting of blood stock levels over festive periods. Blood inventory management is very important. In addition, efforts are made to promote donations prior to festive seasons, such as "Donate a pint of blood before you go home for the holidays." As noted in the Singapore presentation it is important to engage people emotionally.

Mr. Phengthong Banchanthavong noted that his center focuses on activities to collect blood prior to festive events such as new year, or prior to school holidays. More efforts are needed to promote such recruitment drives via SMS, etc.

Dr. Hok noted that Cambodia has many national holidays throughout the year, making it difficult to collect blood during festive periods. Prior to each public holiday the National Blood Transfusion Centre (NBTC) makes plans to dispatch mobile blood collection units as a means of supplementing stocks. In terms of the current situation, efforts are being made to improve collection activities on weekends, in response to requests from stakeholders.

Prof. Tri referred to the presentation by Prof. Rothmony in the morning session about the collaboration among seven universities in Phnom Penh and asked about the advantages of such collaborative activities.

Dr. Rothmony responded that the collaborative activities among the seven universities worked so well because efforts were implemented prior to the launch of the campaign. Preparations were fully implemented to provide education and awareness about the importance of blood donation. As blood donations can decrease during school and university holidays it is important to stress to students the importance of continuing to donate regularly (four times a year for men and three times a year for women).

Prof. Tri noted that students are extremely receptive to the importance of blood donation and understanding of the purpose of collecting blood. It is therefore important to work to educate students and gain their trust with regard to the blood donation system.

Prof. Miyazaki noted that Malaysia, Laos and Cambodia also have shortage periods, similarly to Vietnam, but they make specific planning efforts to take advantage of their particular advantages to overcome the shortfalls. He noted that the experience of these countries demonstrates that there are various solutions to issues faced and innovation and creativity are important requirements.

Prof. Miyazaki and Prof. Tri thanked delegates and closed the first day of the meeting.

Day 2: November 10, 2015

Dr. Pham Tuan Duong, Deputy Director, NIHBT welcomed delegates to the second day of the meeting.

Japanese experience: Marketing strategy development to increase repeaters &

Plenary discussion: How to increase blood donor repeaters

Topic 1: Communication strategies

Prof. Miyazaki noted that communication strategies and efforts to increase blood donor repeaters are closely related. He first presented the situation in Japan, before opening up the floor for discussion. Japan is the fastest aging country in the world, meaning that more people need blood, while fewer people are available to donate blood. It is projected that by 2027 there will be a shortfall of one million blood donors in Japan, if current trends continue. The Japanese government and Japanese Red Cross are working to increase the number of repeater donors and also looking into new iPS technologies to create blood derived cells, such as platelets. Until such technologies become viable it will be important to continue to make efforts to increase repeaters.

The amount of blood collected annually is equal to the number of donors multiplied by the times of donation per donor. The frequency of the times of donation is an area that requires efforts. Already in Japan repeaters account for the major portion of blood collected in Japan. Approximately 21.4% of all donors in Japan account for 65.5% of all blood collected. It can therefore be appreciated that it is critical in Japan to make efforts to increase repeaters.

Recently the Japanese Red Cross engaged in survey, asking a question “Why do you repeatedly donate your blood?” The overwhelmingly most prevalent response was “I want to give my blood for a good cause” (70%), followed by “I heard that the blood for transfusion is in short supply” (51%), “I want to check my blood test result” (37%), and “I can get some sweets and juice” (30%). The reason for first-time blood donors is often different to the motivation for repeater donors.

The Japanese Red Cross is engaged in efforts to register first-time donors in a donor club. These donors are contacted via e-mail, etc., when blood stocks are low, (such as “We need type A blood today!”) as a means of motivating repeat donations. In order to increase young donors, TV and radio campaigns are being implemented that target people in their 20s.

Discussion

Ms. Tan asked about the profile of the donors who are repeaters in Japan. Prof. Miyazaki responded that most donors are in their 40s. Twenty years ago they started to donate in response to the first Japanese Red Cross “Donate at 20” campaign. However, the donation trend is falling in people in their 20s and 30s. What was encouraging, however, is that after the Great East Japan Earthquake that young people donated blood.

Dr. Ngo Manh Quan asked about the motivation for receiving “blood test results” among donors. Prof. Miyazaki responded that the motivation to become a mobile donor is to gain basic information on an annual basis about their blood test results.

With regard to HIV, people found to be positive are not officially informed, but are monitored. Ten to 20 years ago concerns peaked about HIV, which prompted people to give blood out of a desire to find out whether they were HIV positive or negative. However, to prevent high-risk donors from coming to donate blood the results of HIV testing are not shared. In place of the Japanese Red Cross the government has initiated a separate HIV test.

Dr. Nalupta noted that in the Philippines the blood centers send blood that tests positive to the National Reference Library for confirmation. The Government has HIV-AIDS counselors available and once HIV is confirmed the blood service provides initial counselling.

Ms. Pooh Lay Hoon noted that the system in Singapore is similar to the Philippines. Once a case of HIV is identified, it is confirmed with further testing before the patient is informed. Initial counseling can be provided by the blood service, but then further services are provided by the government at the CDC.

A participant from Vietnam asked about emergency media campaigns in Japan and additionally asked whether famous people are used for the purposes of promotion and publicity. She also asked whether Facebook or Twitter are used to promote repeat donations.

Prof. Miyazaki responded that there are no emergency media campaigns in Japan on a national level, as stocks are monitored and efforts made to boost donors prior to the situation reaching critical levels. Blood donor recruitment drives are conducted on a local level to boost temporary or localized shortfalls in donors. Nationwide campaigns are generally targeted at certain age ranges and social media are well-utilized.

Returning to the topic of HIV, Dr. Hok noted that the NBTC in Cambodia can inform a positive donor and refer them to the relevant support services.

Dr. Seong noted that test-seeking behavior is discouraged in Malaysia. Similarly to Singapore, a false declaration act makes it illegal to engage in false representation. If a positive result is confirmed the patient is recalled by letter (but not told what the reason is in the letter).

Dr. Tola (Cambodia) asked what strategies and challenges are faced in Japan in boosting numbers of repeaters. Prof. Miyazaki responded that a key issue is to boost young donors, given that the young population is dwindling. This makes it even more of a challenge to promote donation, particularly given that blood donation is perceived as being a stable system that is not in need of support, unlike other charities. Although each country has different problems, many challenges are shared. Dr. Tola noted that in Cambodia a large portion of the population is young and asked what other methods are used to promote young donors in Japan, in addition to social media. Prof. Miyazaki responded that in addition to social media there is a young donors club, which implements events and shares information. A radio program aimed at young people also features a promotion campaign to donate blood. In this short radio program patients are asked to report on the personal benefits of blood donations. There are very strict information privacy laws in Japan, but some patients are willing to share their experiences of blood donation. The Japanese Red Cross is trying to make it more transparent about how blood is used.

A participant from Vietnam asked about disaster plans for blood transfusion and how stocks are ensured in times of emergency.

Prof. Miyazaki responded that there is no specific program to cover disasters. However, following the Great East Japan Earthquake in 2011 there were no significant blood shortages and also donor numbers increased. It is very difficult to prepare for an unforeseen disaster. Inventories at each blood center are monitored and managed and can be distributed around the country with relative ease.

Dr. Truong Thi Kim Dung noted that HIV testing is implemented in Vietnam and if a positive test is confirmed the patient is recalled and then referred to counselors and to further medical services. Occasionally false positives cause problems, therefore patients are recalled and the situation is explained to them, after which they are referred to physicians. Although all blood is tested for HIV, the results are not informed to patients in order to maintain privacy. In Ho Chi Minh 100% of donors are voluntary and three different volumes of blood are collected. She asked whether Vietnam should abandon 250ml and move to 350ml and 400ml donations only.

Prof. Miyazaki responded that in Japan counseling is not provided directly by the Japanese Red Cross. Public health institutes have counseling services and there is also a HIV/AIDS counseling service, both of which are separate from the blood service. In Japan there are two volumes for

collection – 200ml and 400ml. Currently more than 95% of donations comes from 400ml collections. 200ml donations are now limited to people with small body size. He expressed doubt as to whether it was necessary to change the system in Vietnam.

Dr. Seong noted that in Malaysia even if a donor doesn't want to be informed, if they are confirmed as having one of the TTIs it is a legal requirement to inform the government from a public health perspective. Once a positive case is identified the Ministry of Health will track the donor to provide counseling and provide support and medical care. In order to respond to potential biological false reactions, all counselors are required to be qualified doctors.

Deputy Director Pham referred to the side effects of blood donation, mostly for young ladies, such as anemia, etc. Dr. Seong responded that in Malaysia anemia is due to low hemoglobin and in mobile blood collection people with low hemoglobin are identified and iron tablets are given to help sustain hemoglobin levels.

Mr. Bray noted that according to the presentation almost 40% of donors are female in Singapore, but in many countries the proportion of women donors is significantly lower. This is due to low body weight, but it may be that media campaigns may be not targeted at women.

Prof. Miyazaki noted that approximately 10% of candidates at blood centers cannot donate blood due to anemia. Women are limited to making two 400ml donations a year, whereas men are limited to three 400ml donations. Iron tablets are not distributed in Japan.

Ms. Tan asked about donation "mileage" schemes in Japan. Prof. Miyazaki responded that the Japanese Red Cross acknowledges the number of donations in terms of "mileage," but "gifts" are only extremely small or token gestures, such as a piece of paper.

Dr. Seong asked about the lower age limit for donation in Japan. Prof. Miyazaki responded that the lower limit is 16.

Plenary discussion: How to increase blood donor repeaters

Topic 2: Donor care activities

Ms. Tan encouraged delegates to think about blood donors and how they can be cared for before during and after donation. There are three constructs that need to be considered: 1) Mental care of blood donors; 2) Emotional care of blood donors; and 3) Physical care of blood donors.

In terms of pre-donation, mental care is very important and it is vital to prepare donors for donation. Emotional care is required also prior to donation. In terms of during donation, physical care is very important as people are concerned about the pain that may be involved. Post-donation the emotional care is very important as patients are generally relieved to have successfully concluded donation.

Mr. Teo noted that care for first-time and repeat donors will be different. Dr. Nalupta agreed, noting that first-time donors will need to be provided with the facts and details of blood donation. Some concerns that donors may have is the danger of infection during extraction and whether needles are sterile.

Ms. Tan agreed that in order to respond to the mental state of first-time donors in such a situation it is important to provide thorough information.

A participant from Cambodia asked about mental care during blood donation. He noted people are generally afraid of needles and blood and care needs to be given to people to overcome such fears. It is important for a patient to be given the confidence that he or she is being taken care of. Ms. Tan agreed that "TLC" (tender loving care) is key to assuaging donors' concerns.

Dr. Rothmony suggested that physical and mental care should come first, followed by emotional care. Pre-donation care is important to promote understanding. During donation the experience of patients is extremely important to ensure the retention of donors.

Dr. Seong noted that it is important to make donors feel important and safe. It is important to smile and make people feel safe and establish a relationship from the beginning. Pre-donation activities should focus mainly on mental and emotional aspects. Care during donation is characterized by physical care, including local anesthetic to reduce discomfort.

Ms. Tan asked a question to countries that work to convert family replacement donors (FRD) to voluntary donors (VNRD) and asked whether this donor care construct (mental, emotional, physical care) could be used to motivate donors to become voluntary donors.

Dr. Hok responded that efforts are underway in Cambodia to convert FRD to VNRD. In these efforts emotional care is very important and staff need to be able to explain how VNRD can also be utilized as a means of helping relatives who need blood. For donor care a smile is most important. Ms. Tan noted that in Cambodia there has been significant progress made in converting FRD and VNRD.

Dr. Truong Thi Kim Dung noted that the actions of physicians and nurses are critical in blood donation services in order to make donors feel secure and welcome. After donation donors are provided with drinks and snacks and sometimes may be provided with a small gift. She asked whether donors should be provided with souvenirs or gifts that are common to the whole country and may create further motivation to donate.

Ms. Tan noted that every country is different and therefore the snacks and juice provided will be different. At the main collection center in Singapore there is a cafeteria that provides a selection of food and drink. When Singapore conducted a survey about donation there were many complaints about the cafeteria, but no complaints about the juice and biscuits at the mobile blood stations.

With regard to gifts, Ms. Tan referred to the situation in Korea, where centers started to compete among each other concerning the free gifts provided. Also young people are no longer coming forward in Korea as they question why their blood is only worth a small gift. Ms. Tan noted that donors in Korea were therefore encouraged to donate their book voucher gift (or similar small gift) for donating blood to another good cause. This approach proved to be popular.

Ms. Tan noted that in some countries in Asia it is the culture to give a gift in return for receiving something, but this may conflict with the concept of VNRD. However, simple gifts could be acceptable under VNRD program, including a pen, or similar item. Other measures for gift giving could be to reward people on their birthday, or multi-time donors ("mile-stone donors"). If people are rewarded for "saving lives" (bronze, silver, gold) they will be incentivized to continue to give.

In terms of post-donation care Ms. Tan asked about the physical care of the donor and what approaches are needed to ensure donors return.

Dr. Ngo Manh Quan noted that NIHBT has various approaches to support and care for patients, which delegates had seen on their tour of the facility the previous day. Dr. Rothmony noted that in post-donation care the donors at NIHBT are provided with advice about how to maintain their health.

Ms. Tan noted that blood donors generally do not like to take iron tablets and measures need to be taken to promote the taking of iron tablets. In Singapore donors are provided with iron-fortified multivitamins.

Coffee break

Plenary discussion: How to increase blood donor repeaters

Topic 3: How to maintain blood supply stably?

Dr. Nalupta noted that all countries have to overcome the challenges of providing sufficient and equitable supplies of blood and blood products of the highest quality and safety. Unfortunately, self-sufficiency and stable and equitable distribution of blood stocks is not yet a reality in many countries. The urgent need to establish strategies and mechanisms to achieve this goal is needed.

Typically countries in the high income group where health care systems are more developed and where VNRD is associated with sufficient supply there is a stable blood donor base. On the other end of the scale, there are many countries in the world where supply of blood and blood products are insufficient and unstable. These are in countries in the low and medium income group, where supply is met partly with VNRD as well as with replacement donors and paid donors. Clearly the demand for blood often depends on the state of development of local healthcare systems. Despite some successes in strategies and mechanisms, stable blood supply is still difficult to achieve.

Self-sufficiency of blood and blood products means that the national needs of patients for blood are met in a timely manner and that patients have equitable access to transfusion services, and that the products are obtained from VNRD.

Challenges for a stable and self-sufficient blood supply are the following: 1) Lack of clear national policy and government commitment; 2) Increasing needs and demands for supply of blood and blood products remain a challenge, and 3) Decreasing donor database due to aging in the blood donor pool. The commitment of the national government for self-sufficiency for VNRD and a collaborative approach to policy development is essential.

Each and every country has to share their experience on how to maintain a stable blood supply. Dr. Nalupta noted that in the Philippines there are strict measures to maintain a daily national blood inventory system. There is a nerve center at national headquarters, to which national centers and stations report stock inventories at 9am and 4pm daily. For stations that have three days or less stock an appeal is made for blood donations. She asked other countries how they maintain stable blood supplies.

Discussion

Mr. Bray noted that many of the countries in the region are developing rapidly and there are improvements year on year in healthcare and access to health services. This means that the pressures on health services are continuing to increase. Many of the challenges are at the policy and strategic level and it should be a government policy and commitment to maintain a stable blood supply.

Ms. Tan noted that there is a WHO directive on appropriate use of blood and it is essential to maintain sufficient stocks. To ensure sufficiency in blood supply should not be the sole responsibility of blood services, and, as Mr. Bray had noted, it should be the responsibility of government to create policies and structures. It is not particularly a case of collecting for collecting's sake, but collecting to meet demand.

Dr. Nalupta noted that it is important also to educate clinicians about appropriate use of blood.

Dr. Seong noted that in Malaysia there is a national policy to ensure sufficient blood supply. The national policy stipulates sufficiency, quality and safety. Secondly, it is necessary to have national blood inventory management and the ability to identify safe levels and critical levels, which will enable the blood service to mobilize blood stocks and transfers where and when necessary. Continuous promotion is the cornerstone of stable blood supply. It is also important to educate donors on the importance of continuous donation. Malaysia is also moving towards patient blood management in order to reduce demand.

Dr. Ngo Manh Quan noted that the Red Cross engages in promotion activities and sends a plan to the NIHBT, which is responsible for collection. In some months there are frequent blood drives by the Red Cross and other months there are no drives, making it difficult for the NIHBT to maintain stable supplies. This issue of collection vs. recruitment promotion is one that requires attention.

Ms. Tan noted that an issue faced by Singapore was that a relatively high proportion of the blood collected was not usable. At the end of 1990s the government proposed that the Singapore Red Cross take on the role of the national blood donor recruiter. The job of the blood services group at blood collection centers is to collect, store and distribute blood supplies. The blood donor recruitment program was initiated by the Singapore Red Cross and it maintains its identity within the National Blood Program, with the government being responsible for safety, etc. As the Red Cross is accepted as part of the national blood program, the government provides a grant to manage the national blood recruitment program. This ensures that there are clear KPIs. As a national society the Red Cross takes responsibility for ensuring sufficient supplies. With the collection center staff joint efforts are made to work toward KPIs. The partnership between the government and Red Cross is like a marriage, with the government being the husband and the wife being the Red Cross.

A participant from Vietnam noted that the experience of Singapore sets a very good example. In Vietnam the Steering Committee sets targets and based on these work is engaged with the Red Cross to ensure that targets are met in various provinces. Blood centers need to work closely with steering committees and the Red Cross in each province to ensure the stable supply of blood. It is also important to manage the use of blood and produce components that are good enough for hospitals and clinicians to use. There are increasing needs for blood components in hospitals as health services become increasingly sophisticated and therefore supply sufficiency and stability is a key requirement.

Dr. Hok reported that there are strategies to monitor blood collection in every blood center in Cambodia and the number of mobile blood collections and blood center collections are monitored weekly. The blood supply in blood centers is not stable in Cambodia, but monitoring of collection is in place.

Dr. Seong responded to a question from Dr. Ngo Manh Quan about critical and safe levels, noting that in Malaysia the levels are in response to WHO requirements, with three-day supply being considered critical and seven-day supply considered as safe. Ms. Tan noted that the three-day supply level is also considered the critical level in Singapore too. Singapore has started an inventory response team, which stipulates that all hospitals will have three-days' supply of blood and the blood service will also maintain a three-day stock. Efforts are now being made to ensure that supplies remain within the critical and safe levels (between three and nine-day stocks). When levels fall to five or four days the system to boost stocks is initiated.

Plenary discussion: How to increase blood donor repeaters

Topic 4: How to retain walk-in blood donors in remote and island areas?

Dr. Ngo Manh Quan noted that in the Southeast Asian region there are many islands and 70% of the region is mountainous. In order to ensure blood for islands and mountain regions it is important to have available blood products and be close to a blood center. However, on isolated islands it may be difficult to ensure equipment and electricity supply. Therefore it is important to have emergency supply structures in place. This also presents challenges in terms of transportation.

Dao Ly Son island in Vietnam has a population of 5,000 and is two hours by boat from the mainland. Ha Giang city is approximately 300km north of Hanoi and the northernmost town of Ha Giang province is 150km north of Ha Giang city, which takes two hours by boat. A solution in Vietnam is to use walk-in blood donation, which is the collection of blood in emergency situations from people who are identified as being healthy. Walk-in donors should be people who are prepared to be called on to donate blood to meet a particular emergency. With regard to how many

walk-in blood donors are required, this will depend on blood demand, the frequency of blood use, the local population and the capacity of the regional to meet demand. For example, for less than 5,000 residents approximately 20 to 30 walk-in donors are required.

The procedure to establish and activate walk-in donors involves screening for TTIs, with health checks being conducted annually to ensure that the identified walk-in donors remain healthy.

Lessons learned are that the tests for TTIs have to be screened at least every 12 months. The number of members for each panel is 50-70 people. The hospital is responsible for recording each donor's personal data and ensuring the list is kept up to date, as well as recruiting donors.

Dr. Ngo Manh Quan posed questions for other countries to consider, including: What problems are being faced with blood safety for clinical purposes in rural and island areas? How to ensure blood and blood products for rural and/or remote areas?

Discussion

Dr. Douangchanh Kongphaly noted that in Laos a walk-in blood bank was implemented six years ago, supported by the German Red Cross. At the time training was provided at the district level on blood donor recruitment and committees for blood donor recruitment at the district level were established. Training and education is provided on the importance of giving blood and donors register to become walk-in donors. In Laos there are no prior measures to test for TTIs, with only blood type being tested. Testing for TTIs is conducted after donation. If the provincial level does not have supplies for the district level, the Red Cross calls in walk-in donors.

Dr. Ngo Manh Quan noted that serology tests require at least two hours, which is too long in an emergency. He therefore asked how post donation TTI testing can respond to emergency situations. Dr. Douangchanh Kongphaly responded that TTIs are tested using rapid testing methods.

Mr. Bray added that the storage facilities at the district facilities are significant and there are facilities for storage of units at the district level. Another challenge in Laos is for transport from the provincial to district level, which sometimes requires public transport to be relied on.

Dr. Seong noted that it is important to have a national contingency plan in place that will enable implementation of a plan in the case of emergency. In the case of disasters Malaysia does not implement blood collection in disaster-affected areas, but rather implements blood drives in unaffected areas. The blood is then mobilized and channeled to affected areas. Malaysia suffered the largest flooding in 20 years this year and people were very quick to come forward to donate blood. If blood supply can be maintained at a seven-day level it is possible to respond in an emergency situation, assuming that the majority of refrigeration units, etc., are functioning. Another factor that needs consideration in emergency situations is safety. It is for this reason that Malaysia conducts full serological testing and does not implement rapid tests. During the flooding this year, blood was flown by army helicopter from Kuala Lumpur to the disaster zone.

Prof. Miyazaki noted that Japan does not have a walk-in blood donor system. In Nagasaki there are many outlying islands that take several hours to reach by boat. The Japanese Red Cross maintains a three-day supply nationally and this will be sufficient to cover a disaster situation. Every day the Red Cross monitors the volume of products used in all areas, including isolated island regions. Island facilities are given a slightly higher volume of products to cover any delays in transportation. This results in some products not being used, but this wastage is already calculated into the provision system for outlying islands.

Dr. Nalupta noted that with regard to problems with blood safety, serological testing is used in the Philippines and rapid testing is not used. The Philippine Red Cross uses hub and spoke testing, with blood centers being strategically located across all regions nationally. As noted previously, inventory levels are checked twice daily and in cases of disaster or other emergency.

Prof. Tri thanked delegates for their input. He noted that Vietnam faces a variety of difficult challenges and has very isolated regions, in islands and mountains. The way of organizing blood donation and transfusion services is very different in rural areas in comparison to urban regions such as Hanoi. This is why the walk-in donor system has been developed to respond to needs in rural and isolated areas.

Prof. Miyazaki asked how often people on the walk-in donor list were asked to come and donate blood. Dr. Ngo Manh Quan responded that it depends on the region, but by and large each person is called maybe once a year. Also, if more blood is needed, after the walk-in donor has covered the initial immediate demand, blood products are dispatched from blood centers.

Ms. Tan asked why blood recruitment drives are not implemented to ensure stocks and obviate the need for walk-in donors. Dr. Ngo Manh Quan responded that weather conditions may prevent standard procedures from being implemented, which is why walk-in donors are used. Ms. Tan suggested that walk-in donors could be called on to make a regular donation annually and also be called on in emergency situations.

Dr. Seong asked what percentage of walk-in donors on the list become actual walk-in donors, and what percentage of walk-in donors are tested positive for TTIs. Dr. Ngo Manh Quan responded that 30% of walk-in donors are asked to make regular donations. In the course of a year approximately 70% of listed walk-in donors are actually called. TTI positive donors are an issue, accounting for approximately 10% of first-time donors.

Future collaboration among Asian countries for self-sufficiency based on voluntary non-remunerated donation (VNRD)

Prof. Miyazaki stressed the importance of continuing to engage in collaborative efforts on VNRD. The reason the countries have gathered at this meeting is to continue joint efforts to achieve 100% VNRDs.

Closing addresses

Prof. Miyazaki expressed his appreciation to all delegates for their attendance and active participation. He noted that there had been tremendously productive discussions at the meeting, which had helped all participating countries to understand the situation in each country. It is to be hoped that new ideas or the systems used in other areas will help countries face up to and respond to challenges, as many challenges are shared among the countries of the region. Networking of people in charge of blood donation is important in order to achieve the goal of 100% VNRD. In closing, Prof. Miyazaki expressed his appreciation to Prof. Tri and all his colleagues at NIHBT for their gracious hospitality and excellent arrangements for the meeting.

Prof. Tri thanked all delegates for attending the meeting and expressed appreciation to Nagasaki University for collaborating on the organization of the meeting. He concurred with the words of Prof. Miyazaki, noting the need for ongoing and ever stronger collaboration between the countries in the region. He asked all participants to consider hosting the meeting in the future as a beneficial means of sharing information.



**THE THIRD ASIAN MEETING FOR SELF-SUFFICIENCY
OF BLOOD AND BLOOD PRODUCTS
BASED ON VOLUNTARY NON-REMUNERATED DONATION
(VNRBD)**

“Sustainability and Safety of Blood Programme Implementation based on VNRBD”

SUMMARY

**November 23-24, 2016
Novotel Hotel, Kuala Lumpur, Malaysia**

**THE THIRD ASIAN MEETING FOR SELF-SUFFICIENCY
 OF BLOOD AND BLOOD PRODUCTS
 BASED ON VOLUNTARY NON-REMUNERATED DONATION**
“Sustainability and Safety of Blood Programme Implementation based on VNRBD”

AGENDA

Day 1: November 23, 2016	
8:45	Introduction and objectives of the meeting <ul style="list-style-type: none"> · Prof. Shinjiro Nozaki, Nagasaki University
9:00	Report of last year’s meeting and history of research activities <ul style="list-style-type: none"> · Prof. Yasushi Miyazaki, Nagasaki University
9:30	Japan’s experience: How to sustain VNRBD based blood programme implementation <ul style="list-style-type: none"> · By Mr. Masahiro Takikawa, Blood Service Headquarters, Japanese Red Cross
10:00	Coffee Break
10:20	Case studies in Asian countries: “Sustainability and Safety of Blood Programme Implementation based on VNRBD” <i>Part 1: How to sustain needed blood donations based on VNRBD?</i> <ul style="list-style-type: none"> · Presentations by Cambodia, Malaysia, Philippines, Vietnam and Thailand <i>Part 2: How to keep safety blood programme linked to global health problems?</i> <ul style="list-style-type: none"> · Mr. Jun Fukuyoshi, Nagasaki University
12:30	“Towards self-sufficiency in blood and blood products based on VNRBD: Global status, challenges and strategies” <ul style="list-style-type: none"> · Prof. Shinjiro Nozaki (on behalf of World Health Organization (WHO))
13:00	Lunch
14:00	Case studies in Asian countries: “Current challenges in blood safety and emerging and re-emerging diseases in ensuring adequate blood” Presentations, followed by panel discussion among all participating countries <ul style="list-style-type: none"> · Malaysia, Lao PDR, Cambodia, Philippines, Thailand, Vietnam
15:30	Opening ceremony <ul style="list-style-type: none"> · Welcome remarks by Prof Yasushi Miyazaki, Nagasaki University · Opening remarks by Hon. Dato’ Seri Dr. Hilmi Bin Haji Yahaya, Deputy Health Minister of Malaysia · Launch of web and mobile application for MBTS
16:00	Group photo and coffee break
17:00	Demonstration of news apps <ul style="list-style-type: none"> · Malaysian Blood Ordering System, MyBOS (web based app) · MyBlood (mobile app) By Universiti Teknologi Malaysia (UTM)
19:30	Dinner
Day 2: November 24, 2016	
9:00	Summary of the first day <ul style="list-style-type: none"> · Prof. Shinjiro Nozaki, Nagasaki University
9:30	Plenary discussion of experiences and lessons learned from the experiences in Asian countries: “Sustainability and Safety of Blood Programme Implementation based on VNRBD”
10:30	Coffee break
11:00	Discussion: Future collaboration among Asian countries Chaired by Prof. Shinjiro Nozaki, Nagasaki University
12:00	Closing addresses: <ul style="list-style-type: none"> · Dr. Yasmin Binti Ayob, President of Malaysian Blood Transfusion Society · Dr. Noryati Binti Abu Amin, Director, National Blood Centre · Prof. Shinjiro Nozaki, Nagasaki University
12:30	Lunch
15:00	Study tour to National Blood Centre



SUMMARY OF MEETING

Day 1: November 23, 2016

Introduction and objectives of the meeting

Prof. Shinjiro Nozaki (Nagasaki University) welcomed participants to the meeting. He noted that in 2011, the Cambodian National Blood Transfusion Centre, Nagasaki University and WHO started collaboration to develop case models for the expansion of youth participation in voluntary non-remunerated blood donation (VNRBD) programs. Through this initiative significant progress was made in the campaign conducted by students of universities in Phnom Penh. This program reinforced the recognition that there is a need for exchange of information and compilation of successful implementation models in Asian countries for achieving self-sufficiency and safe blood programs. Since these initial initiatives, several meetings have been successfully conducted. The 1st Asian meeting was held in Phnom Penh, Cambodia in 2014 followed by the 2nd meeting in Hanoi, Vietnam in 2015.

Prof. Nozaki noted that this meeting was established in order to respond to the essential need to form networks among Asian countries and share information on the best means of engaging in blood donation programs in the Asian region. Following on from the success of the previous two meetings, this third meeting is being jointly organized by Nagasaki University, the Ministry of Health, Labour and Welfare (MHLW) of Japan, the World Health Organization (WHO) and Japanese Red Cross Society in collaboration with the Ministry of Health (MOH) of Malaysia, the Malaysian Blood Transfusion Society (MBTS) and the Malaysian National Blood Centre (Pusat Darah Negara (PDN)).

The theme for this year's meeting had been designated as: "Sustainability and Safety of Blood Programme Implementation based on VNRBD."

Prof. Nozaki noted that the objectives of the meeting were as follows:

1. To share experiences on different strategies and mechanisms for working towards self-sufficiency in safe blood and blood products based on VNRBD.
2. To review evidence, gaps, challenges and trends in donation, safety, ethics, access, sufficiency and self-sufficiency in blood and blood products.
3. To identify the need for priority actions to achieve this goal at national, regional and global levels.
4. To update information for blood programme implementation including global health problem.

With regard to the expected outcomes of the meeting, the following were noted:

1. Recognition of the roles and responsibilities of national health authorities and national partners in achieving self-sufficiency in safe blood and blood products as part of universal health coverage.
2. Elaboration of national systems, strategies, mechanisms and resources that can contribute to the achievement of self-sufficiency in safe blood and blood products based on VNRBD.
3. Update information concerning global health problem related blood programme implementation.

Prof. Nozaki noted that he was attending the meeting in his capacity as a professor of Nagasaki University, but would also make a presentation on behalf of the WHO, as a WHO representative had been unable to attend the meeting.

There was a brief self-introduction from all the participants.

Dr. Noryati Binti Abu Amin, Director, PDN, thanked all the organizers and welcomed all participants to Malaysia. She noted that representatives from all the different states in Malaysia were participating in the meeting and expressed the hope that the meeting would be a fruitful and informative one for all concerned.

Report of last year's meeting and history of research activities

Prof. Yasushi Miyazaki explained the background and aim of the activities relating to this meeting, which are partially supported by Nagasaki University. He noted that "safe blood donors" are voluntary non-remunerated blood donors" and that the target of the WHO is to achieve 100% VNRBD in the world by 2020. As part of this global goal it will be necessary to achieve 100% blood products from VNRBD in Asian countries in the coming years. Given that Japan achieved 100% VNRBD in 10 years from 1964 to 1973, going from almost 100% remunerated blood donation to 100% VNRMD, the thought behind this meeting was that if Japan could create a package of its experience, it would be useful for other Asian countries as a source of reference.

As a first step, two key meetings were held in Cambodia. In December 2012 a national consultative forum towards achieving sufficient blood supply based on 100% VNRBD was held in Phnom Penh in Cambodia. Nearly 300 people attended the meeting. In March 2013, university students in Phnom Pen were asked to participate in a further meeting, and an introductory meeting for preparation of the National Blood Transfusion Center (NBTC) workshop on advocacy activities towards achieving 100% VNRBD in schools and universities in Cambodia. Thirty-three participants from six selected universities in Phnom Penh, NBTC and Nagasaki University's research team attended the meeting. Through this meeting it became clear that further information was necessary on means of promoting VNRBD. Therefore an NBTC Pre-campaigning Workshop on Promotion of Voluntary Blood Donation Among Youth Using Japanese Experiences was held in September 2013. The subsequent blood donation campaigns in Cambodia proved to be very successful in boosting the desire to donate blood among university students and efforts were sustained.

The Japanese experience to achieve 100% VNRBD was utilized but actively modified by university students to promote VNRBD in Cambodia. This active contribution of students prompted Cambodia and Japanese officers and researchers to expand these experiences to other Asian countries. In order to share these successes it was decided to hold an Asian meeting, the first of which took place in Cambodia in January 2014. This was followed by the second meeting in November 2015, held in Hanoi, Vietnam.

At the meeting held in November 2015 each country provided presentations. One of the key topics was how to increase blood donor repeaters, including communications strategies, donor care activities, methods to maintain stable blood supply, and methods to retain walk-in donors in remote and island areas.

Through these two meeting various issues have been discussed. These include circumstances of blood donation in Asian countries; how to increase repeater donors; sharing problems in each country for the achieving and maintaining 100% VNRBD; and the importance of regular communication and exchange.

Until these meetings were held there was no all-Asian meeting or network to work towards 100% VNRBD. It was also noticed that there are few opportunities to strengthen networks among blood donation-related organizations in Asia. It is therefore truly meaningful to be able to continue discussions, interactions and cooperation on VNRBD through the forum of this meeting.

In conclusion, Prof. Miyazaki expressed his thanked to the organizers in Malaysia and to all the participants for their attendance at the third meeting.

Discussion

Dr. Noryati noted that it is very important for the Asian network to be maintained. She asked what plans there are to maintain communication and whether it would be possible to maintain an electronic-based conversation throughout the year, in order to keep up to date with developments in all countries. She noted that it would be useful if Nagasaki University could lead efforts in that regard.

Prof. Miyazaki noted that communication is an important issue, but a system for regular communication should naturally arise from the participating countries. It will be important to spend time in this meeting to consider ways to maintain regular communication.

Japan's experience: How to sustain VNRBD-based blood programme implementation *The direction of blood service in Japan*

Mr. Masahiro Takikawa noted that donations are now predominantly 400ml, having changed from 200ml in 1986. After reaching a peak in 1985 the number of donors has been falling, and it was in response to this situation that donation volume was increased from 200ml to 400ml.

In terms of donor demographics, the number of donors in their 40s to 60s has remained flat, while the number of young donors has been decreasing in recent years. Japan has an aging society with a declining birthrate and it will be essential to secure sufficient donors in the future. It is anticipated that by 2027 there will be 5.45 million donors required, but only 4.59 million donors actually giving blood, which represents a projected shortfall of 0.85 million donors by 2027. Given this situation in which the number of donors is falling and anticipated shortfalls in blood donation in the future, it will be essential to continue to promote efforts to ensure sufficient donors.

As part of these efforts in 2005 the Repeat Donor Club was launched as a means of promoting repeater donation. In 2006 donation cards were introduced for donors. The Ministry of Health, Labour and Welfare (MHLW), which is responsible for implementing general measures, implemented that Law on Securing a Stable Supply of Safe Blood Products in 2003 and from 2005 onwards reforms have been implemented to the blood donation structure and discussions on the ways for blood donation to be best promoted have taken place, as part of a roadmap to secure donors in the future.

The medium-term targets of the roadmap are to increase young donors in their teens through to people in their 30s; to increase companies and organizations which cooperate with blood donations; to increase repeat donation; and to gain greater recognition for blood donation. Nationwide publicity efforts are implemented to promote blood donation, under the core "LOVE in Action Project." This project implements events throughout the year, including information lectures on the importance of blood donation and other promotional efforts to encourage repeat donors. In addition, efforts are also implemented at university campuses to encourage students to donate. Specific efforts to promote repeat donations include the Repeat Donor Club, the sending of requests by postcard and sealed letter, requests by phone call and requests for rare blood types.

The effect of publicity and promotion on young people has gradually become apparent and methods such as the Repeat Donor Club have been proven to boost the number of repeat donors, as club members donate more frequently, on average, than non-members. In order to further enhance blood donation efforts and Donor Club management in the future, the Japanese Red Cross Society (JRCS) is currently constructing a new framework system that will ensure improved efficiency and effective outreach to donors. This new system is planned to be launched in 2017.

Discussion

Dr. Norhanim Asidin (Malaysia) noted that Malaysia is implementing similar activities. Unfortunately there are financial constraints. She asked how JRCS gets funding.

Prof. Nozaki responded that in Malaysia the Ministry of Health is responsible for the implementation of blood donation, whereas in Japan the JRCS is responsible for implementing blood programs. In Japan the Japanese government provides guidelines and rules on safety. Therefore the system is slightly different to that in Malaysia. The Government of Japan provides a price for blood products to the JRCS and this is a source of income for the JRCS. JRCS is therefore responsible for implementing all aspects of blood donation programs.

A participant from Malaysia asked about the Repeat Donor Clubs and how members are engaged to become active.

Dr. Takikawa noted that a total of 800,000 people are registered nationwide in the Repeat Donor Club and the response rate to requests sent by mail or through direct phone calls is approximately 20%.

Dr. Anizah Arshad (Malaysia) asked about the advantages to blood donors for holding membership of the Repeat Donor Club.

Dr. Takikawa responded that for repeat donors a special donor card is provided. There are no particular benefits or incentives for such donors, but the special card provides a small degree of “prestige” and donors can check the results of their previous donations online.

A participant from Malaysia asked about the age of the donor population and the frequency of donation for age group.

Dr. Takikawa responded that the aging rate is a very serious issue for blood donation in Japan. In the near future ASEAN countries will be facing a similar situation. It is anticipated however, that as society ages, more blood products will be needed to treat NCDs and other conditions.

Prof. Miyazaki noted that there is a technique to produce platelets from induced pluripotent stem (iPS) cells and a phase 1 trial is due to be started in Japan soon. It is hoped that in the future industry-generated blood products could be used, providing another means of responding to shortages in blood donors.

Dr. Nalupta (Philippines) asked if there are measures other than repeat donations for increasing donation, including networking of blood products from other regions.

Prof. Nozaki noted that for plasma derivatives it will be important to consider regional networking, and possibly for other blood products. It will be important to consider such collaboration in the future. However, such considerations are at a very preliminary stage.

Dr. Noryati noted that it is important to share data on blood donors, including their ages and the trends relating to blood donation among the various age groups. She noted that Malaysia will be also be facing the reality of an aging society from 2030 and it is therefore important to start thinking now about how to respond to the situation 15 years in the future. While the suggestion about networking of plasmas products is a good idea, it is currently only being implemented by companies, rather than countries. It will be important to give consideration to other means of supplementing blood stocks, including investment in technology. From this perspective the iPS-based platelet generation technology noted by Prof. Miyazaki will be another important way forward.

Coffee break

Case studies in Asian countries: “Sustainability and Safety of Blood Programme Implementation based on VNRBD”

Part 1: How to sustain needed blood donations based on VNRBD?

1) Presentation by Cambodia:

Ms. Som Lina (Cambodia) reported that Cambodia as a population of 15 million and has daily blood needs of around 200 units. Currently 31% of donations are VNRBD and 69% is from family replacement donors (FRD). One out of every 250 Cambodians donates blood, representing only 0.33% of the population, which is less than the 1% of the population recommended by the WHO.

In order to promote community and donor motivation, efforts are being made to increase VNRBD through the recruitment of new voluntary donors and also efforts to boost the rate or repeat donors. In order to increase VNRBD, efforts are also being made to convert FRD to VNRBD. Strategies used include the following: personal approach; education about the importance of blood donation; advertisements about the advantages of blood donation; efforts to reduce the fear of the unknown; and deployment of the target message.

Converting FRD is very important and it is therefore necessary to develop relationships with hospitals to achieve this strategic goal. A group approach is also being considered as the most pragmatic and effective approach to recruit donors. A behavioral change model is also being used to help create relevant messages for each donor group and to decide which marketing channel to use.

Efforts are also being made to create a familiar brand, including the creation of logos for the Cambodia Blood Service. Other marketing tools include poster campaigns and flyers for public dissemination, in addition to paper bags and medals for repeat donors.

The mobile blood unit strategy aims to approach organizations to seek their support for hosting a mobile donation. The date is then set and a pre-mobile visit education session is held. After the education session has been implemented the mobile donation visit is then held. Mobile tools include the use of sign-up sheets, signage banners and the deployment of “commitment cards” that are provided to donors.

In collaboration with the Union of Youth Federation of Cambodia initiatives are being implemented towards the target of youth contributing towards 100% VNRBD by 2020. “The Love Club” is another initiative that is planned for implementation in order to boost repeat donation.

In collaboration with the Cambodia Red Cross university blood donation campaigns (based on the Nagasaki model) are being implemented and activities are taking place in 12 districts in Phnom Penh (blood drives are being implemented twice-yearly). Funding will be required to ensure that blood drive activities remain sustainable. Entertainment and educational activities are important aspects for promoting blood donation to university students.

In addition, in collaboration with local business partners, fixed site donations are being implemented at supermarkets and also on specific days, including Valentine’s Day, World Blood Day, and various national holidays.

In terms of efforts to ensure donor retention various efforts are being implemented. These include sending text messages or emails to donors thanking them for their donation and reminding them when they are eligible to donate again. Multiple donations are also recognized with certificates, pins or medals. It is recognized that it is imperative to ensure every donor has a good experience when they donate and blood donation staff work hard to provide attentive and friendly care. Social media are also key to building up voluntary donations and reaching a bigger audience and can help to build a stronger message and trust in the blood service.

Discussion

Dr. Quan (Vietnam) asked about the difference between family donors and voluntary donors.

Ms. Lina noted that voluntary donors are referred to those people who come freely, whereas family donors are those who provide supplies specifically for family members.

Dr. Noryati suggested that rather than “family donors” the term “replacement donors” would be easier to understand, because it is important to avoid the replacement system, which is unstable and ad hoc. She noted that the Cambodia has made tremendous progress in boosting VNRBD.

Ms. Lina responded that as she had noted in her presentation good progress has been made through various initiatives.

2) Presentation by Malaysia:

Dr. Shahnaz Irwani Sabri (Queen Elizabeth Hospital) noted that transfusion of blood and blood products helps to save millions of lives every year and demand for blood is growing year by year, due to aging of the population, greater access to healthcare and attention to maternal and child health. However, supply is not increasing in step with demand. The WHO has noted that to ensure self-sufficiency a 5% donation rate nationally is required.

Self-sufficiency in safe blood and blood products is defined as follows: “The national needs of patients for safe blood and blood products, as assessed within the framework of the national health system are met in a timely manner, that patients have equitable access to transfusion services and blood products, and that these products are obtained from VNRBD of national, and where needed, of regional origin, such as from neighbouring countries.”

Blood supplies are rarely sufficient to meet local demand as well as inadequate to meet the international quality and safety standards. 62 countries have achieved a national blood supply based on 100% VNRBD.

In order to achieve VNRBD it is important to encourage people to donate voluntarily for altruistic reasons and emphasize that VNRBD should be a conscious decision to make a social contribution. In countries still dependent on blood donation by patients' relatives or by paid donation, increasing VNRBD will help shift the responsibility for blood provision from patients' relatives to the health care system and discourage people from selling their blood. VNRBD is the foundation of a safe and sustainable blood supply. Strategies must be put in place to strengthen national blood donor programmes to build a stable pool of the safest possible blood donors. Many challenges obstruct the path and efforts to improve the safety and sustainability of the blood supply chain and there is a need to strive to achieve a well-organized blood donation service.

In terms of strategies for sustaining VNRBD, Sabah has a total of four strategies. These are establishment of national blood donor program based on VNRBD, culture of voluntary donations through communication education, quality donor care, and building of a stable donor pool.

In terms of education and communication efforts are being made to build a stable donor pool by recruiting new donors, encouraging regular and lapsed donors to pledge, and working to engender public trust in blood donation services. Trust is nurtured through the distribution of posters, videos and story sharing, as well as talks given to potential donors. It is very important to create a culture for blood donation and for this purpose education from early years is extremely important, conveying to children the importance of blood donation.

In terms of communication with donors, SMS is used to remind blood donors that the next donation is due. An initiative called “Infoblast” is used through the telephone network. LED displays are being used to inform donors of events. Also a part of communication initiatives is story sharing. This

includes the beneficiaries of blood donations sharing their stories and expressing their thanks for blood donations.

In Sabah there are 25 hospitals and the blood stocks are monitored in order to share resources, particularly in view of the fact that Sabah has the highest number of transfusion-dependent thalassemia patients in Malaysia. There is a proposal to share blood stock information with donors online, and also enable blood donors to make an online appointment to donate blood. Given the ubiquity of smartphones and apps this online accessibility is critical to maintaining blood donations and gaining new donors. A further effort is the “Club 25” WHO initiative.

In terms of appreciation to blood donors, every year a national blood donation day is implemented to express thanks to donors and also further raise awareness about the importance of blood donation. Donor care is essential to ensure repeat donation and assuage concerns. Well trained staff are needed to put donors at ease and also build relationships with donors. Finally, teamwork to ensure sustainable blood donation programs is vital. Efforts can be both top-to-bottom and also bottom-up and efforts to increase staff motivation must be constantly made.

Discussion

A participant asked about the rate of repeat donors in Sabah. Dr. Shahnaz responded that regular donor percentage is between 80 to 90%. In Kota Kinabalu there is a small donation population, of about 300,000. The usage for thalassemia alone is very high, which is why it is important to engage donors and achieve regular donation. Most donations are from mobile blood drives.

Dr. Noryati noted that the collection rate in Malaysia last year was approximately 2.5% nationwide. Blood donation hospitals must achieve a KPI of 60% from regular blood donors.

3) Presentation by Philippines:

Dr. Christie Monina M. Nalupta noted that the National Blood Service Act of 1994 calls for the promotion of voluntary blood donation. This law aims to promote VNRBD and to provide adequate, safe, affordable and equitable distribution of supply of blood and blood products. The act is due to be amended in the near future. The Department of Health (DOH) is the regulatory body for blood donation, with the Philippine Red Cross engaging in advocacy.

The move towards achieving 100% VNRBD was stepped up in 2006 with the implementation of the DOH memorandum 136 to close commercial blood banks. The DOH National Voluntary Blood Services Program (NVBSP) has a stated vision of “Safe Blood for All” and its mission is to act as a nationally coordinated and efficient networking of blood service facilities based on voluntary blood donation that will ensure safe, adequate, timely and accessible blood supply and the rational use of blood in the Philippines through advocacy, professional education and research.

Advocacy and promotion of VNRBD are critical factors in the NVBSP. These efforts include the integration of voluntary blood donation in the curriculum of primary and secondary school students. A new learning material was recently launched for students to promote blood donation.

There are a total 607 blood-related facilities in the Philippines. The Philippine Blood Coordinating Council is engaged in professional education on blood donation, including training on VNRBD, seminars on rational blood use and training on quality management systems. Secondary efforts include public information drives and educational measures, as well as networking and coordination.

The Philippine Red Cross Blood Services’ (PRC BS) vision is to become the leading provider of safe and quality blood in the Philippines. Its mission is to save lives by providing universal access to safe blood in a focused, fast, friendly, flexible, and forward-looking manner through an all year round program managing the recruitment, collection, testing, processing and distribution of blood sourced from volunteers and thus inculcate a culture of social responsibility of all Filipinos.

There are 102 PRC chapters in the Philippines and new centers have been established and existing ones upgraded. PRC national headquarters receives daily reports on blood inventories of blood at all collection centers nationwide. In terms of the proportions of blood donors, 43% are new, 57% are regular and 62% were young donors in 2015. 73% of donors are male. In 2015 there were a total of over 200,000 donors nationwide.

Recruitment is now being implemented down to the village level and it is a challenge for the PRC to ensure that at the rural level repeat donors can be secured. Thorough safety checks are implemented for all donations.

In terms of promotion efforts, as the Philippines is one of the most SNS-active populations in the world, social networks are widely used to promote blood donation. The PRC implements online and SNS efforts to educate and recruit users and has hubs on Facebook, Twitter, etc., to support campaigns. Thank-you campaigns are also implemented through videos via Facebook, etc., which convey appreciation from beneficiaries to blood donors. Facebook Live is also used as a means of implementing marketing activities and educating and recruiting users.

PRC values partners in the media and celebrities who work to promote blood donations and recruit new donors. Appreciation events and newspaper articles and ads are also used to express appreciation to donors.

In 2015 the country was able to collect 890,916 units, still short of the 1 million unit requirement. However, VNRBD has improved slightly from 72.3% in 2013 to 78.7% in 2015. In terms of PRC donations alone, the VNRBD rate is 97.4%.

Discussion

Dr. Quan asked about the methods used to manage the 890,000 units of blood that were collected in 2015.

Dr. Nalupta responded that the PRC monitors its own stocks to assess when levels are reaching critical levels and it shares this information with other institutions.

4) Presentation by Vietnam:

Dr. Ngo Manh Quan reported that there is one national blood center in Hanoi, in addition to which there are four regional blood centers, 10 provincial blood centers, 60 hospital blood services and one Red Cross blood donation center. Blood donor recruitment is implemented through a process of cooperation among the Ministry of Health, central government and local governments, in addition to the Red Cross Society and other organizations and universities.

The proportion of VNRBD has increased year-by-year from 1994, and in 2015 the VNRBD rate reached 96.9% and a total number of 1,101,781 units donated. Over this period of almost 20 years, the VNRBD rate has increased from almost zero to nearly 100%. This result has been achieved through steady efforts to promote VNRBD, including the initiation of the first national blood donation day in 1995, the centralization of the blood service in 2004, the initiation of a national meeting on VNRBD since 2007 and the establishment of a National Steering Committee on VNRBD in 2008.

One of the major problems facing Vietnam is an unstable supply of blood month by month, which is due to national holidays and other seasonal factors. In order to respond to this issue and sustain VNRBD in a stable manner, efforts are being made to improve donor service and care. These efforts include the provision of a gift, certificate and transportation allowance for donors. Drink and food are also provided after donation. In addition, after a donation has been made, the donor is sent a thank-you SMS message. SMS messages are also sent on donors' birthdays and other special occasions.

In terms of communication activities, social media such as Facebook and YouTube are being used, in addition to press releases, meetings and training. There are 31.3 million Facebook users in Vietnam and the National Institute of Hematology and Blood Transfusion (NIHBT) engages in activities on Facebook that have potential to reach a wide audience.

With regard to blood donation methods, blood is collected at blood centers, but in order to ensure coverage in rural areas, mobile units also make visits. There are also fixed sites where people can donate blood, in addition to blood donation centers.

Another critical effort is to recruit young donors. NIHBT organizes youth donor clubs and volunteer clubs and is also implementing the WHO "Club 25" initiative.

In terms of ensuring a stable supply of blood, efforts are needed to respond to the chronic shortages of blood around major holidays, including the new year and summer, which requires a variety of efforts and activities to ameliorate the problem. Efforts are being made to expand donor resources and focus on retaining existing blood donors.

Discussion

Dr. Noryati noted that rapid progress has been made in Vietnam in recent years. She asked about the budget for promotion of blood donation. Dr. Quan noted that hospitals cover the costs of promotion efforts in their area and the government covers other costs.

5) Presentation by Thailand:

Ms. Pawinee Kupatawintu reported that there is one national blood center (NBC) and 12 regional blood centers in Thailand, in addition to 160 blood services branches and many hospital blood banks. These centers perform blood donation and supply blood for all hospitals in their areas. Thailand is following WHO guidelines towards 100% VNRBD by 2020. The aim is to create an enabling environment for 100% VNRBD, foster a culture of voluntary blood donation, build and maintain a safe and sustainable program, and provide quality donor service and care. Policy, standards and regulations in Thailand are based on WHO guidelines and the National Blood Policy is due to be updated this year. The Thai Red Cross Society (TRC) has a selection of handbooks and guidelines that set out standards for blood donation and transfusion, including ethical frameworks and quality systems. Efforts are also being made to enhance infrastructure, facilities and equipment, with 11 collection facilities being instituted at regional blood centers and one collection unit already in operation, with another one pending. Thailand has also established a centralized database and information management system for blood data.

In order to promote voluntary blood donation, yearly campaigns are implemented based on different themes. Monthly campaigns and campaigns on specific days are also important. Her Royal Highness Princess Maha Chakri Sirindhorn awards medals to donors who reach 36 and 108 donations. To maintain safe and sustainable voluntary donors, donor recruitment training courses are held. These courses aim to recruit new young donors, including such initiatives as youth clubs and Club 25 programs. Efforts are also implemented to retain existing blood donors, including the sending of SMS messages.

Thailand has eight mobile units in operation around the country. In addition, there are three fixed stations at shopping malls that are open every day. Appointments can be made for plasmapheresis donations. The blood service also offers yearly blood chemistry checkups and iron deficiency anemia clinics.

Across the country as a whole 2,274,788 of donations were received in 2015, representing 3.5% of the population. In Bangkok alone there are 775,117 donations, representing 13.6% of the city's population, although the average for other regions is 2.5%. Similarly to Vietnam, shortages may occur during holiday periods.

Twenty-five percent of blood supplied from the NBC is sent to regional hospitals, and one of the aims is therefore to increase donations at regional centers. This is one of the targets for actions in the future, in addition to efforts to ensure a stable supply of blood throughout the year and to implement patient blood-management programs.

Discussion

Dr. Anizah Arshad asked whether there was any particular season when there were difficulties in blood collection and supply (such as the wet season) and how blood was supplied in times of emergency.

Ms. Pawinee responded that in times of disaster the stocks at all centers nationwide are checked and sent from the nearest center. The system works so that blood can be supplied around the nation to areas that are deficient in blood supplies. Ms. Charuporn Promwong added that blood is flown in when required in emergency situations.

Dr. Quan asked about the quantity of blood donated. It was noted that the amount of blood collected is generally 450ml, but 350ml for people with lower body weight.

Dr. Nalupta noted the large number of hospital blood banks and also the fact that Thailand has achieved 100% VNRBD. She asked how hospital blood banks collect blood. Ms. Pawinee responded that hospitals have both mobile units and also engage in collection in fixed locations (at the hospital).

Dr. Sakinah Bt Ahmad asked about the advantages given to repeat donors in order to maintain VNRBD. Ms. Pawinee responded that the aim is to encourage young people to become regular donors in the future. The Youth Club and Club 25 initiatives have been proven to be very effective in recruitment, as witnessed by the fact that donations from school and university students (where the club activities are implemented) decrease during school holidays when club activities are not taking place.

Part 2: How to keep safety blood programs linked to global health problems?

Mr. Jun Fukuyoshi (Nagasaki University) noted that donated blood in Japan was not safe in the 1960s and 50% of blood was hepatitis-infected. Now all blood is safe and ensured by strict quality standards. However, in this globalized era there are new challenges being faced due to global movements of people that mean communicable diseases can no longer be contained within the borders of single countries. The safety of donated blood can only be achieved with a rigorous donor monitoring process and product tracking process. In Japan safety standards are extremely strict to respond to this situation.

To illustrate his point, Mr. Fukuyoshi cited the case of dengue fever in Japan. Dengue fever is caused by the dengue virus, transmitted via mosquitos. Symptoms can include fever, muscle pain, bleeding and low levels of blood platelets. Dengue is common in more than 110 countries. Dengue fever is rare in Japan and no patients infected inside Japan had been found for 60 years. However, in 2014 there was an outbreak of dengue fever in Japan. A woman, who had no record of going abroad, was hospitalized due to a high fever. The case was reported to the Ministry of Health, Labour and Welfare (MHLW), which sent an alert to all municipalities and the Japanese Red Cross Society (JRCS). Investigations showed that the patient had been bitten by mosquitoes in Yoyogi Park in Tokyo.

To respond to the danger of infection through blood donation, donors were asked if they had visited Yoyogi Park within the last four weeks. If they had visited the park, they were not eligible to donate. Also, donors were asked to report back to the JRCS if they experienced symptoms of dengue fever after having donated blood. If a donor developed symptoms, the response would be

to track down and recall the donated blood. In order to do this effectively the JRCS was required to have a highly advanced tracking system in place.

In Japan, processes to ensure blood safety have been well developed and these processes were successfully deployed in a timely manner in the case of the dengue fever outbreak. This is due to the well-managed collaboration between the JRCS and the MHLW. One advantage of the system in Japan is that the only organization authorized to take blood donations is the JRCS and this means that the system operates quickly and effectively.

Discussion

Dr. Noryati asked about how many patients were ultimately infected with dengue fever and if there was an impact on blood supplies in the end. Mr. Fukuyoshi responded that ultimately approximately 20 patients were identified and there was no impact on the blood supply system, but the speed at which countermeasures was implemented was very important.

Dr. Nalupta asked if there are any documented cases of dengue fever being transmitted through transfusion. Dr. Noryati responded that the incidence of dengue transmission through transfusion is extremely rare. What is interesting is that dengue is present in all countries in Southeast Asia, and there are many millions of cases around the world, but only a tiny number of transfusion transmission cases. It is also the case that there have been no documented cases of transfusion transmission in Malaysia. However, she concurred with Mr. Fukuyoshi about the tremendous importance of having highly vigilant and responsive alert systems in place, which are capable of responding to emergency events.

A participant asked about the impact on donor retention by deferring those donors who had been to Yoyogi Park. Mr. Fukuyoshi noted that as long as detailed explanations are provided to the patient, there is generally no impact on repeat donations. Prof. Miyazaki responded that there is usually very little impact on repeat donation as donors are understanding of the reasons for deferring donation.

Prof. Nozaki noted that every year there are cases of new diseases that require a response and it is for this reason that cooperation among countries and regions is vital.

Panel Discussion

Dr. Tsukada (Nagasaki University) noted that the Malaysia had talked about the importance of education to children and asked what measures are being implemented.

Dr. Shahnaz responded that no concrete measures are in place as yet, but it is recognized in Sabah that it is essential to provide education and information from a very early age and cultivate a culture of blood donation. Dr. Noryati added that there is a “Young Doctors” program in elementary schools that focuses on health education and it is hoped that education on blood donation could be incorporated into the “Young Doctors” programs at elementary schools. The Ministry of Health is seeking to work with the Ministry of Education in the future to further complement and develop classes and education on blood donation.

Dr. Cheng (Cambodia) asked about screening for malaria for blood donation. Dr. Nalupta responded that in the Philippines donors who have travelled to malaria-endemic areas cannot donate blood for one year. Blood samples are screened for either antigens or antibodies.

20th Century Challenges: Combat Communicable Diseases

Prof. Nozaki explained that although he was participating in the meeting in his capacity as a professor of Nagasaki University, he was engaged in work at the WHO Kobe Centre, which is the only research institution within the WHO, established 20 years ago. As such, he would provide a presentation on behalf of the WHO to the meeting.

He began by noting that countries in Africa and Asia are now facing a double burden in that they, like countries in other regions, are experiencing an increased in NCDs, but also still have to tackle communicable diseases. In 1979 smallpox was successfully eradicated and currently efforts are underway to eradicate polio. There are many global threats to global health through communicable diseases, including Ebola, MERS, BSE, anthrax, SARS, meningitis, cholera, and animal flu.

Facing this situation, the UN Millennium Development Goals (MDGs) sought to reduce child mortality, improve maternal health and combat communicable diseases. These MDGs have had swift success in some areas (such as the scale-up of coverage of ARVs in low- and middle-income countries), but less success in other areas, including access to sanitation. The great public health achievements of recent years include reduction in child mortality, malaria control, prevention and control of HIV/AIDS, tuberculosis control and control of tropical diseases.

However, in terms of future challenges, as was seen in the Ebola outbreak of 2014-2015, there are new challenges that need to be faced. Ebola had a devastating effect in three countries in Western Africa and demonstrated the essential need for measures to respond to catastrophic collapse of health systems in the face of a pandemic. This year the issue of Zika virus has presented a further challenge to global health care providers and the WHO declared a global emergency. The case of global outbreaks is likely to grow in the future.

Following on from the MDGs, the Sustainable Development Goals (SDGs) to 2030 include “well-being” in the new goal for the first time. The health challenges for the 21st century are becoming increasingly complicated, including emerging disease and outbreaks, aging and demographic change, NCDs, and rapid and unplanned urbanization.

In a global era it is very difficult to manage outbreaks only by quarantine. It will be important consider requirements for global frameworks and regulations, including the International Healthcare Regulations (IHR) that were issued in 2005. The WHO works constantly to disseminate information and in its response to the Zika virus created a Strategic Response Plan for handling the Zika outbreak. On November 18, 2016, the WHO announced that the Zika virus and associated consequence remain a significant public health challenge requiring intense action, but they no longer represent a public health emergency of international concern. IHR are a major tool for control of communicable diseases and the WHO is currently in the process of implementing reforms based on the lessons from Ebola and Zika, among others.

Lunch

Case studies in Asian countries: “Current challenges in blood safety and emerging and re-emerging diseases in ensuring adequate blood”

1) Presentation by Cambodia

Dr. Hok Kim Cheng reported that there is a low VNRBD rate in Cambodia, currently standing at 31%. There is a high prevalence of TTI and a strategy is needed to screen blood donations. In addition, there are increasing blood component needs, which need to be balanced with limited resources.

In order to ensure that a good strategy is in place to respond to the annual increase (10-15%) in blood demand, in Cambodia measures have been implemented to create provincial steering committees for improving VNRBD. Further measures include increasing the number of blood donation campaigns and events in communities, universities and youth groups. A further promotion measure is the recent creation of the blood donor club “The Love Club,” the activities of which are led by youth organizations.

In order to overcome misunderstanding and apprehension about blood donations among the populace a variety of other measures are also required. These include the implementation of blood donor marketing activities, efforts to improve good governance on blood management, and responding to the public by showing real stories of blood donors and how they have benefited from VNRBD. Providing a media message can be a very powerful means of overcoming misunderstanding among the population.

Among the donor population there is a high TTIs rate of approximately 6.1% and countermeasures include methods to improve blood donor selection and screening. Although there are no plans as yet to introduce NA testing, a quality management system is in place.

Blood products that are created from whole blood include red cells, FFP and platelets. There are plans to create cryoprecipitate from FFP and strengthen HTC.

One of the main issues facing Cambodia is budgetary and human resources limitations. As VNRBD entails no cost recovery, it will be important for Cambodia to continue to receive support from donors. To date various partners have provided support for improving capacity building for staff and for improving advocacy.

In the Five-Year National Strategic Plan the National Blood Program runs from 2013-2017 and will be updated from next year. A new blood center has been established in Phnom Penh and two regional blood centers are in place, with two further centers scheduled to be constructed in the coming year.

Discussion

Dr. Noryati asked if there is a plan for national vaccination against hepatitis in Cambodia. Dr. Cheng responded that vaccinations for hepatitis B have been introduced for newborns, which should help to lower the prevalence in the long term.

Dr. Quan asked whether first-time donors are screened for HBV, etc., prior to donation. Dr. Cheng responded that in Cambodia no screening is implemented prior to donation and the TTIs are discovered after donation, at the current rate of approximately 6.1%. Cambodia follows WHO guidelines about not implementing pre-donation screening.

2) Presentation by Philippines

Dr. Dennise Roy Pasadilla noted that he would be presenting on the Philippine's response to Zika virus. Zika is a flavivirus, transmitted by *Aedes* mosquitos. Last year there were two possible cases of Zika cases where transmission was through blood transfusion in Brazil, which has prompted countermeasures in the Philippines.

In the Philippines, there have been cases of Zika virus throughout the country, concentrated in Iloilo Province (Western Visayas). There are three blood collecting facilities in Iloilo and as the main blood center in the region the Western Visayas Regional Blood Center engages in donor recruitment, blood collection, blood testing, component processing and storage and issuance. The center is tasked to network with all private and government hospitals with hospital blood stations who do not have the capacity to perform blood collection and testing.

Because of the Zika cases in the province measures have been stepped up to ensure blood safety, based on the recommendations for Zika virus of the American Association of Blood Banks, including deferred collection in areas with active transmission, quarantine of blood components, education and awareness campaigns and the implementation of appropriate donor questionnaires.

The Department of Health (DOH) has also implemented preventive actions, including a Zika awareness campaign in Trimedia, screening of incoming passengers, an enhanced surveillance system, and the designation of six major hospitals as Zika testing centers. The DOH has also taken the lead in risk reduction strategies, including urging communities to intensify campaigns in

eliminating mosquito breeding places through the “4S Campaign.” The 4S means: Search and destroy mosquito breeding places, self-protection, seek early consultation for fever lasting more than two days, and say no to indiscriminate fogging.

When the Zika virus was confirmed to be transmissible through transmission the PRC implemented updated guidelines, coordinating closely with the DOH. In terms of risk reduction strategies the Red Cross has implemented education, donor screening, quarantining of blood units, reinforcement of blood collection in non-affected areas, and has advocated autologous blood donation.

In terms of the impact on the community, the deferral criteria have been accepted by blood donors living in Zika-affected areas. Mobile blood donation organizers from Zika-affected areas have accepted to defer the conduct of their blood drives until further notice. The response has involved increased neighboring inter-chapter blood augmentation among Red Cross chapters and also excellent coordination with other centers around the country.

Discussion

Dr. Ayob referred to the quarantining of blood and asked what is done with products that do not have a shelf life of two weeks. She asked whether this policy caused shortfalls in blood supply. Dr. Pasadilla responded that as part of the response to Zika there were national efforts to make up shortfalls by meeting demands from regions outside the affected regions

Dr. Noryati noted that Zika is confined to Iloilo and asked how long the deferral policy will remain in place. Dr. Pasadilla responded that in a meeting with city health officials a month ago there was a plan that an announcement would be made that Zika was endemic in the area. Once such an announcement is made it would be possible to continue collection.

Prof. Miyazaki asked about education efforts to reduce Zika risk. Dr. Pasadilla responded that the Philippines has long been plagued by dengue fever and therefore the dengue information network was able to be utilized to promote Zika prevention measures.

3) Presentation by Lao PDR

Mr. Thongphanh Chanthalack reported that the Lao Red Cross National Blood Transfusion Center has been carrying out programs since 1995, and plays a leading role in providing safe and adequate blood supply. It is fully responsible for blood donor recruitment, retention, collection, processing, testing and supply of blood and blood components to hospitals. The blood program is implemented at one national center, three regional blood centers, 13 provincial blood centers and 17 blood storage units in district hospitals and six military hospitals.

The number of units collected through VNRBD has been steadily increasing, from 25,120 units in 2011 to 31,286 units in 2015 (out of total donations of 36,635 units), which corresponds to 0.86% of the population. 43.7% of donors are first time donors and donor retention is an issue that requires further efforts. In terms of the composition of blood donors in 2015, 56.28% were students and 17.88% were government employees. 65% of donations are made by men.

Under the national Action Plan for 2015, the aim was to increase the number of VNRBD to 35,200 units. In addition, a total of 119 donor recruiters were trained and 396 youth were trained to operate youth blood donor clubs. Also, under Action Plan 2015, 26 annual meetings with target groups have been held to set up plans for blood mobile units. In addition, efforts have been made to provide information through the media about the importance of VNRBD. Other initiatives under way include the establishment of a walk-in blood bank to increase blood supply in emergencies and for outlying areas, and also measures to improve the database system.

In terms of donor recruitment and retention activities, annual planning to set up plans and calendars for blood donor recruitment in central and provincial levels is being implemented.

Meetings with key focal points to plan activities before conducting mobile blood donation are also being implemented and training initiatives are also ongoing.

In terms of the issues and challenges facing blood donation in Lao PDR, there is an increasing demand for blood supply due to increases in population and development in the cities. Furthermore, another challenge is to ensure the sufficient and timely delivery of health products and other supporting materials. Screening and preparation methods also need to be implemented systemically and under high-quality conditions.

With regard to future plans, the aim is to improve the health status of the Lao population by providing sustainable access to safe and adequate blood supply. As part of this target, work is underway to achieve the WHO recommendation of at least 1% of total population donation per year and 100% VNRBD. Systematic testing of collected blood units is also part of the future plan, as is improvements to an integrated and standardized blood services database network. Efforts will be made to strengthen provincial blood centers to provide safe and sufficient blood supply in their catchment area and to create additional blood storage units at the district level. The target for the future is to realize 60,000 units of blood collection annually.

Discussion

Dr. Ayob asked about the volume of blood collection. Dr. Thongphanh responded that 350ml of blood is collected.

Dr. Noryati asked if there is a cultural barrier to donation in Lao PDR that prevents older population from donating. She noted that the percentage of young donors was very high. Dr. Thongphanh responded that it was likely that the campaigns among the young people have proved to be most successful, which is why they account for such a large proportion of total donors.

Dr. Ayob asked about blood screening and Dr. Thongphanh responded that there is 100% testing of donated blood.

4) Presentation by Thailand

Dr. Charuporn Promwong explained that the National Blood Centre (NBC) is part of the Thai Red Cross Society (TRC), whose patron is Her Majesty the Queen. In Thailand in 2015 approximately 2.27 million units of blood were collected. The NBC and 12 regional blood centers (RBC) collect about one-third of all donations. Thailand has achieved a 100% VNRBD rate.

Every unit of blood is screened for transfusion transmitted infections (TTIs) and 89% of blood screening was implemented by NBC and RBC. The rest were tested by university hospital blood banks. In terms of infectious screening in donated blood in Thailand, donors are provided with health questionnaires and serology tests are also implemented. ID-NAT testing for HIV, HCV and HBV is implemented at NBC and RBC.

With regard to the emerging and re-emerging diseases in Thailand, the government is engaged in mosquito-borne disease surveillance, including monitoring for Zika, dengue, Chikungunya and malaria. HEV has been found in one in 3,000 blood donors.

With regard to Zika virus, Thailand is in the list of countries with Zika virus infection according to the WHO. From January to October 2016, 57 pregnant women have been found to have Zika infection and 12 women already delivered normal babies. There have been reports of two babies born with microcephaly and this may be associated with Zika infection. Government policies include: eradicating mosquitos, surveillance for congenital anomalies and GBS diseases, and close monitoring for the prevalence of infection.

It still has yet to be determined if Zika in Thailand is sporadic or endemic. Thailand is trying to follow the WHO recommendations to ensure blood supply through reinforcing blood collections in

non-affected areas; implement measures to reduce risk to blood supply, select an appropriate risk reduction strategy, and promote awareness of potential high risk blood.

In March 2016 the NBC circulated the recommendation for donor deferral strategy for suspected Zika patients. Under this strategy, donors are deferred for 28 days. If a donor develops Zika after donating there is a virus infection 14-day post-donation window to inform the authorities about the occurrence of Zika. The guidance was revised further in November 2016, with an order to temporarily defer donors who are sexual partners of men with suspected or confirmed Zika infections for a minimum of six months and a temporary deferral on donors who are sexual partners of men who have travelled to Zika-affected areas for a minimum of six months.

A Committee of Emerging Infectious Disease and Transfusion Transmitted Infection (EID) has also been appointed. The committee is responsible for surveillance of all emerging diseases and the establishment of guidance. The matter of whether to screen blood for Zika is still under discussion and a conclusion has yet to be reached.

Discussion

Prof. Miyazaki noted that as many as 80% of Zika cases do not present symptoms and asked whether the blood donations have been able to gain a picture about how many people have actually contracted Zika.

Dr. Charuporn responded that EID committee is still in the process of discussing whether to screen for Zika.

5) Presentation by Vietnam

Dr. Quan reported that one of the major issues facing Vietnam is the lack of blood donors, both in terms of quantity and quality. Most of donors are first-time donors, and this has an impact on the quality and frequency of blood donation. In addition, the community's awareness towards blood donation is still limited, with 82.3% of donors choosing to donate blood only out of a desire to get the results of HIV tests (2008 survey) and 63.8% of donors believing that people at high risk of HBV infection are able to donate blood (2014 survey).

There is a high rate of prevalence of TTIs infection among the community in Vietnam and a report published by NIHBT indicates a high rate of prevalence of HBsAg positive donors in Vietnam. On a nationwide basis, 2.93% of donations were discarded due to TTI test reactions. There are still differences in TTIs screening from center to center, with the NAT test being applied only in five regional blood centers and a rapid test is still implemented in emergency cases in rural areas.

A third challenge is the unbalanced blood stocks of each blood group. In Vietnam there is a tendency for Group A and O shortage problems. For example, in June 2015 of the 3,840 regional blood center units available, only 163 units, or 4.2% of the total, were blood group A.

A fourth challenge is differences in quality of blood products, due to differences in procedures and equipment between centers. These differences relate to the processing of products and also the system of supply and transportation.

With regard to emerging and re-emerging diseases, major challenges are HIV, syphilis, malaria and hepatitis. In Vietnam, approximately 8.6 million people are infected with hepatitis B. Vietnam issued guidelines in April 2016 for ensuring safe and adequate blood supplies in response to the ongoing Zika virus. Dengue fever is also a significant problem in Vietnam and one that requires an ongoing response.

Discussion

Dr. Ayob asked about the problems with the supply of group A and O blood. Dr. Manh responded that in terms of prevalence, 45% of the population is group O and 25% is group A in Vietnam.

While the proportion of the population with group A blood is approximately one-quarter, supplies of group A can occasionally fall to very low levels.

Dr. Noryati noted that the scale of the problem with hepatitis B was very large and the advances made by Vietnam have been very impressive. She asked how blood products are used. Dr. Quan responded that 70% of blood collected is separated into products, including platelets, plasma, etc. Vietnam has concluded a contract with India to export unused blood plasma for processing. Hospitals are charged for blood products, which enables cost recovery.

Prof. Miyazaki asked if there are any cases of dengue fever transmission through transfusion. Dr. Quan responded that there is no such information available in Vietnam.

Dr. Ayob noted in Malaysia there is pre-screening initiative for dengue fever for patients scheduled to have major operations to avoid complications and these results show that many people have suffered dengue fever in the past and have the antibodies. Dr. Quan noted that dengue fever is a serious seasonal issue in Vietnam.

A participant referred to the patients who donate blood out of a desire to get a HIV test. Dr. Quan responded that questionnaires are implemented to respond to this situation and assess risk factors among blood donors. The questionnaire includes a question asking whether the donor seeks to know the results of the HIV test. Dr. Ayob noted that Malaysia has also experienced the issue of blood donors seeking to have HIV tests, although the problem tends to fluctuate over the years.

Dr. Nalupta asked whether people seeking to have a HIV test prove to be negative are continued to be used as donors. Dr. Quan noted that a study has been implemented to assess donor knowledge about HIV prevention and the questionnaire includes questions that seek to assess the intentions of first-time and repeat donors to evaluate risk.

Dr. Cheng asked about the plan to introduce NAT testing and asked about the reason for introducing it. Dr. Quan responded that there are five regional blood centers in Vietnam, all of which implement NAT testing.

6) Presentation by Malaysia

Dr. Faraizah Abd Karim reported that cases of Zika virus have been found on both peninsular Malaysia and also Sabah and Sarawak. There have been various outbreaks in Malaysia over the years, including from hand, foot and mouth disease in 1998, to SARS (2003), Nipah Virus (1999), Dengue fever (2014 onwards), MERS CoV (2015) and Zika virus (2016).

Characteristics of TTIs are asymptomatic blood-borne phase, survival or persistence in collected blood or components, the ability to cause infection by the intravenous route, and the ability to cause identifiable disease in the recipient. Factors affecting transfusion transmission include the amount and stability of the virus, the volume of viraemic blood transfused and the immune status of the recipient. The risk of infection depends on the size of the population exposed to the infection and immunity because of prior infection.

Emerging diseases have a direct impact on blood safety, availability and needs. They also have the potential to disrupt blood service operations, causing deviations from usual routines, adjustment and adaptation, and require rationalization and restructuring.

In terms of TTIs, the main issue in Malaysia is dengue fever. In terms of challenges in detection, there is difficulty in identifying transfusion-associated transmission in endemic areas where the primary vector is widespread. Many infections result in mild or asymptomatic illness that is not recognized as transfusion-acquired infection. Diagnostic laboratories capable of documenting infections and their sources are not available in many endemic countries.

There was a surge in dengue infections from 2014 and due to this increase a surveillance study with the National Public Health Laboratory (NPHL) was implemented in 2014. Blood donors in the Klang Valley were tested for NS1 and Dengue igG. The results showed that no donors were NS1 positive, although 60-70% of the population were positive for igG.

Chikungunya is characterized by small outbreaks in localized areas and does not affect blood collection.

Zika virus was found in 1969 in Malaysia, but there have not been any outbreaks since then. In the recent outbreak there have been seven confirmed cases in Malaysia. The government recognizes the possible introduction of Zika virus because Malaysia already has Aedes mosquito, which spreads the dengue virus and is able to spread other disease. The Ministry of Health (MOH) has formulated a Standard Operating Procedure (SOP) for Management of Zika Virus Infection and circulated this to all health institutions and universities on 4 February 2016. The SOP includes strengthening in various areas: clinical surveillance for Zika virus in hospitals and clinics, lab surveillance, microcephaly surveillance, prevention and control action by state health departments and district health offices; and guidelines for preparedness.

The Transfusion Task Force Committee was formed to manage risk reduction of transmission/transfusion of Zika virus. This task force engages in close collaboration with public health authorities.

The resulting action plan aims to maintain a safe and adequate blood supply at all times. The risk reduction approach focuses on: 1) Introduction of specific donor deferral criteria, 2) implementation of sensitive screening tests, 3) limiting production of blood components or derivatives likely containing agent, 4) discontinuing collection of blood in a specific geographic region, 5) improved adherence to evidence based and conservative use of blood and blood components, and 6) implementation of pathogen reduction methods.

In addition the MOH provided a budget to the task force to develop guidelines and training for combating Zika. This led to the formulation of the specific donor deferral criteria. Following an outbreak in Singapore consideration was given on how to control Zika in the south of the country, as many Malaysians commute into Singapore to work each day.

There have been seven reported cases of Zika in Malaysia. The first case was a woman from the Klang Valley, and the second case was in Sabah. The third case was a pregnant woman infected by her husband who worked in Singapore. The sixth case was also of a pregnant lady in Sabah, the sister of whom was infected, which was discovered upon the sister's return to Kuala Lumpur. In total four cases have been in peninsula Malaysia and the remaining three in Sabah.

There is no active transmission of Zika, but there is local transmission, which requires the deferral of donors according to the guidelines. The number of deferrals spiked in September and October and this has had a slight impact on blood supplies, although it was possible to coordinate supplies. In terms of a screening test, no screening is done except for an initial study, in which no positive Zika was found among the test cohort.

Opening ceremony

Welcome remarks by Prof Yasushi Miyazaki, Nagasaki University

It is a great pleasure to be able to hold the Third Asian Meeting for Self-Sufficiency of Blood and Blood Products based on Voluntary Non-remunerated Donation in Malaysia. This meeting is jointly organized by the Ministry of Health of Malaysia, the Malaysian Blood Transfusion Society (MBTS), the Malaysian National Blood Centre (Pusat Darah Negara (PDN) and Nagasaki University and it is a great pleasure to have the honor of the presence of the Deputy Minister at the opening ceremony.

Timely access to safe blood is a very important issue and self-sufficiency of blood products based on VNRBD is essential. However, many countries are still on the way to achieving this goal. Two years ago the first Asian meeting was held in Phnom Penh, Cambodia and last year the second meeting was held in Hanoi, Vietnam.

At these meetings we have shared information and challenges. It is essential to obtain and share information about the situation in other countries so that new ideas about how to combat existing and emerging challenges can be elucidated. It is hoped that the third meeting will also provide a forum for fruitful discussions, building on the results of previous years.

Opening remarks by Hon. Dato' Seri Dr. Hilmi Bin Haji Yahaya, Deputy Minister of Health, Malaysia

I would like to express my sincere appreciation to the organizing committee for extending an invitation to me. This meeting is the result of collaboration between Nagasaki University, the Japanese Red Cross Society, and Malaysian organizations, including the MOH, MBTS and PDN. The support of the Ministry of Health, Labour and Welfare (MHLW) of Japan and the WHO is also very much appreciated. On behalf of the Malaysian people I would like to extend warmest greetings.

I have been informed that this meeting originated from collaboration among the WHO, Nagasaki University and Cambodia, seeking to organize a successful blood donation campaign. There is a great need for experts from Asian countries to share their knowledge in ensuring safe and stable blood supply. This year's theme of "Sustainability and Safety of Blood Programme Implementation based on VNRBD" is very appropriate and many medical treatments have increased the need for blood transfusion to support patients through their recovery or maintain their health. The supply of safe blood is therefore vital and can only be assured through a stable supply from voluntary donors. Voluntary donors are considered to be the safest donors for preventing TTIs. I am pleased that voluntary donors are motivated by a desire help others and I am proud that Malaysia is one of the few emerging economies where VNRBD is almost 100%. In 2015 a total of over 700,000 units were collected and it is hoped that donors will continue with these acts of kindness. I am pleased that the society promotes the dissemination of knowledge in order to ensure a safe blood donation service.

I am also pleased to launch two applications today: MYBOS and MyBlood, which were developed jointly with Universiti Teknologi Malaysia. The aim of these apps is to further advance the blood donation service in Malaysia and ensure self-sufficiency of blood and blood components.

Following opening remarks the Deputy Minister officially launched the two new apps that had been developed jointly with Universiti Teknologi Malaysia (UTM).

Group photo and coffee break

Demonstration of apps by UTM

Malaysian Blood Ordering System, MyBOS (web based app)

Norarlina Amirah reported that MyBOS is an online portal for blood ordering, accessible via the internet. It offers two separate interfaces for PDN and hospitals. Login credentials for security are also provided and it enables real-time ordering. The usage of the system has been found to enable a faster turnaround time of 22 minutes from order to reply confirmation. It also enables immediate fulfilment status.

Various products can be ordered through the system and the request form also makes it possible to add further requests. MyBOS also enables users to browse requests from other hospitals. The

individual report page can be downloaded either in PDF or Excel format. If users need help using the system there is also an FAQ page.

Hospitals that wish to make a request access the “Blood Request Form.” The PDN responds to each individual request and the ordering institutions then prints out a confirmation slip and takes it to the PDN to pick up the order.

MyBlood (mobile app) (Donor Alert Application)

Parveenderjeet Kaur Bal reported that the new app MyBlood is already available on Android and will soon be available on iOS. The aim is to aid the PDN in informing the public about their mobile donation locations in a much more efficient and cost-effective way. It also aims to educate and spread awareness on blood donation and to assist in delivering urgent requests.

The app provides information on donation count and information, location-based events information, and real time notifications and alert messages from PDN. The app can also be customized for individual institutions.

The app also makes targeted donor requests possible and creates donation records for the user of the app, also providing reminders of the next time to donate. The mobile donor location alert provides the location of blood donation mobile units in the area of the app user, thus further enhancing accessibility to blood donation mobile units. The home dashboard of the app shows all information on one screen, making it very easy for users to navigate. An application has also been made to Facebook for approval for registration via Facebook.

Discussion

Dr. Quan noted that the app was fast and easy to download. He asked how donors could be encouraged to use this app after they have downloaded it.

Ms. Parveenderjeet responded that the app works passively and aims to deliver information to the donor and encourage them to go and donate when the next date for donation comes close.

Dr. Quan noted that a similar app is under development in Vietnam and will provide special offers for reductions at supermarkets or other retail outlets.

A participant asked if it would be possible to customize the app for individual institutions. Ms. Parveenderjeet responded that if the hospital were to contact UTM it could be customized accordingly.

A participant asked whether customization would be free of charge. Ms. Parveenderjeet responded that it was not possible to give a definitive answer, but each institution could negotiate with PDN and UTM on specific customization requests.

Dr. Noryati noted that the app will be handed over to the MOH of Malaysia and it will be able to be used by hospitals. If there are extra functions that are desired on the app the institutions should inquire with the MOH, which will then approach UTM for advice.

Day 2: November 24, 2016

Summary of the first day

Prof. Nozaki noted that there had been fruitful discussions during the previous day. He noted that during the three years since this meeting had started great advances had been achieved. The meeting has also enabled participants from different countries to engage in communication and interaction and share knowledge and experience.

In terms of the main points of the meeting yesterday, all of the countries have achieved great advances towards 100% VNRBD and many successful cases were shared, including on advocacy, education and motivational activities. Many countries emphasized the point that retention of donors is one of the most important continuous challenges. All countries are successfully advocating for new donors and young donors. After that retention is a key issue in order to maintain stable blood supplies. It is also important to have a big picture for future supply and demand backed up by data to make preparations in advance and in order to respond to aging and other issues.

The meeting also discussed issues relating to emerging and re-emerging communicable diseases. In the Asian region HBV, Dengue and Zika pose serious problems. Many countries are in the process of considering how to respond to the Zika virus. Although the WHO declared the end of the emergency situation on 18 November 2016, Zika will remain a serious challenge. Cases of microcephaly appear to be very limited in Southeast Asian countries and the correct answer in terms of a response to Zika is as yet unknown. However, it appears that most people in Asia have already got antibodies to Zika virus in Asia, which is why there are fewer cases of microcephaly.

Dengue and HBV also pose serious issues in Asia, but it is necessary to consider the cost-effectiveness of screening in blood tests. It will be necessary to consider the case models in the countries that are doing screening for HGV or dengue. It will be necessary to evaluate the outcomes and results and assess the degree of cost-effectiveness, against the backdrop of limited resources.

Plenary discussion of experiences and lessons learned from the experiences in Asian countries: “Sustainability and Safety of Blood Programme Implementation based on VNRBD”

Dr. Nalupta noted that the WHO has downgraded the Zika virus and it is no longer considered a global emergency. She asked if there are any prospects for revising the deferral guidelines.

Prof. Nozaki noted that the current WHO situation with regard to blood safety issues is that at WHO Headquarters the blood safety unit was reorganized and now only one dedicated staff member is dealing with blood safety. The Service Delivery and Safety Department of the WHO is planning to review and revise the guidelines for Zika relating to blood transfusion. The emergency situation has been downgraded and if another pandemic occurs and it will likely that a response will be quick, but otherwise standard response measures will continue to be implemented.

Dr. Nalupta asked whether the current guidelines will remain in operation. Prof. Nozaki responded that the current guidelines will remain in place until new ones are created and until then the 28 day deferral guideline will remain in place.

Dr. Noryati noted that blood transfusion safety themes are a challenge for countries due to budgetary constraints and the fact that the support structure at the WHO has also been merged and reorganized. Blood transfusion services face a constant battle with new diseases and risks to health. There is also a still a role for member states to write to the WHO and let the organization know about the challenges that are being faced in combating emerging risks. With input from member states it will help the WHO to revise guidelines. The countries of Southeast Asia face shared challenges with regard to Zika and it is up to the member countries to contact the WHO and emphasize the challenges that are still being faced.

Prof. Nozaki noted that there is no blood safety specialist in the Western Pacific regional office of the WHO and there is only person at WHO HQ in Geneva. Regardless of this sparse structure, it is important for countries to provide input and support to efforts being implemented by the WHO.

Dr. Quan noted that there are 64 cases of Zika reported in Vietnam and it remains a source of concern. The number of deferrals is also high.

Dr. Cheng noted that in Cambodia efforts are being made to check cases, but to date there have not been any confirmed cases. A major challenge is to ensure stable blood supply and diseases like Zika can impact supply. He suggested that regular teleconferences be held as a means of sharing information.

Prof. Nozaki asked if participants would be willing to participate in regular teleconferences to share information on blood products and blood transfusion. Participants were positive about engaging in teleconferences or Webinars. Prof. Nozaki suggested that it should be for the WHO to take the initiative in organizing such regular meetings.

Dr. Charuporn noted that regular meetings such as this one are an excellent opportunity for sharing ideas and forming networks, because every country has similar problems. She also noted that teleconferences would be a useful means of sharing information. What would also be useful is for countries to share data, including on malaria, dengue and Zika.

Prof. Nozaki noted that cost-effectiveness issues relating to Zika, dengue and malaria are also important to consider and any trials that are implemented on a country basis could be useful for other countries when considering the best means of allocating costs.

Mr. Thongphanh noted that there have been no confirmed cases of Zika in Laos, but it is nonetheless a pressing issue as tourists visit the country from other regions.

Dr. Noryati noted that in Malaysia a trial of 1,000 screening tests was implemented, including 500 tests from Johor State, closest to Singapore. Luckily none of the donors turned out to be positive for Zika. There are therefore no plans to screen all blood donations for Zika. However, in November the FDA of the United States made it mandatory to screen all blood donations. This would not be practical in Southeast Asia due to cost limitations, but one proposal has been made that tests could be implemented on a sample of pregnant women donors. It was agreed clinically, but with the economic situation and budgetary limitations the plan has been put on hold. If Zika reemerges as an issue next year, this proposal could be considered once again. The risk of Zika transmission through transfusion is one that does pose a risk however small, and it is difficult sometimes to know how to prioritize resources.

Dr. Nalupta asked about augmentation of blood supplies during specific times of the year, such as Haji period in Malaysia or Christmas or other holiday periods. She asked countries to share strategies.

Dr. Noryati responded that in Malaysia there are many festivals, including Eid, Chinese New Year and Christmas and these coincide with school holidays. Therefore blood donations fall at these times. The MBTS works with religious authorities to promote blood donation during the fasting month and promote donation out of a sense of responsibility. Each state tackles its challenges differently. It is very important to work closely with organizers and formulate promotion campaigns that coincide with specific times of the year.

A participant noted that during the fasting month many Muslims do not donate. To respond to this issue donation drives are implemented in the evening after the fast has been broken and prayers have concluded. Many mosques have provided their cooperation during the fasting month. It is essential to plan ahead for such blood donation drives and implement follow-up. During the week prior to Eid and the week after Eid, everyone goes on holiday, so it is important to plan for stocks to ensure there is no oversupply as well as no undersupply.

Another participant noted that past experience provides a very good picture of how stocks will fluctuate.

Another participant from Sabah noted that cooperation with temples and churches is also implemented and liaison is implemented with other institutions such as the army and air force.

Visits are made to army barracks, etc., to ensure a continuous supply of platelets and other blood products.

Mr. Thongphanh noted that thalassemia is an issue in Malaysia and asked how it is dealt with.

Dr. Noryati responded that there are approximately 6,000 thalassemia patients in Malaysia, many of whom are in Sabah. If thalassemia patients need two units of blood every two weeks, they could consume up to 25% of total blood supplies (up to 40% in Sabah). This is viewed as an issue by the MOH and efforts are being implemented to reduce the number of patients with thalassemia. The MOH has announced that children from the age of 16 are going to be screened. In treatment groups not only must patients be provided with blood, they also need filters and other items. It is important to work closely with clinicians, finance officials and policy makers to provide effective treatment to thalassemia patients and also work to reduce incidence and number of thalassemia patients.

Dr. Quan noted that thalassemia is a problem in other Southeast Asian countries and asked about the limits placed on donation from thalassemia carriers. Dr. Noryati responded that standards are set for hemoglobin levels from thalassemia carriers.

Dr. Charuporn noted that in Thailand approximately 20 to 40% of blood supplies goes to thalassemia patients. Hematologists are looking into bone marrow transplant as a means of treating the disease. In terms of donation, if the hemoglobin meets predetermined levels then donations are accepted from thalassemia carriers.

Dr. Sabariah Bt Mohd Noor noted that in Perak State there is currently an outbreak of malaria. She asked the panel to share the strategies that can be taken during such outbreaks.

Dr. Noryati noted that the case of South Africa is a useful source of reference for Malaysia, where donation is stopped in certain areas at times of high malaria incidence. In Malaysia a target is to eliminate malaria by 2020. There has been a case of transmission through transfusion of malaria and the public health department has requested that further measures be considered, as the blood that was the source of the transfusion was from a foreigner from a country where there is a high incidence of malaria.

Dr. Sabariah Bt Mohd Noor asked about setting a radius for stoppage of collection in the case of a malaria outbreak. Dr. Noryati suggested that in such situations it would be necessary to consult with persons responsible for identifying vectors.

Dr. Quan asked about iron supplements for repeat donors as a means of responding to anemia. Dr. Charuporn responded that after donation donors are provided with 30 iron tablets.

Dr. Cheng asked about hemoglobin screening and whether it is implemented by other countries. Dr. Nalupta noted that the conventional copper sulfate method is used to test hemoglobin. A participant from Malaysia noted that although hemoglobin meters are expensive (US\$10,000 per machine), meaning that initial costs are high, these initial costs could be offset in the long term. Dr. Noryati noted that there have been several reports about non-invasive hemoglobin meters, but further information would be required.

Coffee break

Discussion: Future collaboration among Asian countries

Prof. Nozaki noted that Nagasaki University has received a research grant from MHLW for the past three years and it was hoped that further funding could be received in the future to perpetuate these meetings. The future schedule of the meeting would be informed in the future. He asked participants whether they considered a meeting such as this to be necessary. He also asked for

opinions about what kinds of collaboration should be introduced in addition to this conference to further expand and enhance collaboration among participating countries.

Participants were unanimously in favor of continuing the meeting into the future.

Prof. Nozaki asked for any country wishing to host the meeting next year to indicate their intention to host it.

Dr. Noryati noted that if sufficient time is provided it would be possible to get budgetary support to fund the meeting.

Dr. Quan noted that Vietnam would also be very happy to host the meeting next year.

A participant asked why Singapore, Indonesia and Myanmar were not attending. Prof. Nozaki responded that Myanmar had indicated that it would be unable to attend. Singapore had also indicated that it would also be unable to attend the meeting on this occasion. With regard to Indonesia, Prof. Nozaki had attempted to make contact with officials involved in blood collection, but had not been able to make successful contact.

Prof. Nozaki thanked Malaysia and Vietnam for indicating their willingness to host the meeting. He noted that consideration is also being given to hosting the meeting in Nagasaki.

With regard to the theme for the meeting next year, Prof. Nozaki noted that the theme would be determined in consultation with all members, based on timely issues. This year the issue of Zika virus was very timely and this formed the basis for the afternoon session on the first day. Next year the latest issues will be discussed. In terms of the timetable for the meeting, preparations will start approximately in six months in advance.

Prof. Nozaki also noted that he would make further efforts to involve the WHO, although budgetary constraints may apply. Dr. Nalupta suggested that at the next meeting Dr. Yu Junping of the WHO could be invited to participate via web and interact with participants online. Prof. Nozaki noted that he would continue to consult with the WHO about supporting this meeting. The WHO Kobe Center is engaged in research on universal health coverage (UHC), innovation and aging. Blood safety issues form a part of such research and it will be important for the WHO to engage more in the future.

Dr. Noryati asked about the functioning of the WHO Kobe Center. Prof. Nozaki responded that the WHO Kobe Center was established in 1995, fully funded by local governments for 20 years, which have provided 120 million USD. However, the center has been criticized for not issuing sufficient research papers. Prof. Nozaki is currently engaged in efforts to renew the research efforts and focus of the center. WHO Kobe Center has also launched research collaboration with Asian academia and has a budget for research funding. It is hoped that blood safety issues can be incorporated into research funding and grants in the future. More information on research grants will be available over the course of the next year.

Dr. Noryati noted that it may be useful to create an e-mail group to discuss certain issues and keep communication channels open all the time and exchange information on strategy and latest efforts. Blood safety is still the main thrust for the meeting, but it would be useful to share information on other issues during the course of the year. Prof. Nozaki noted that he would work to set up core groups and expanded groups for collaboration and communication via e-mail.

Dr. Noryati noted that Malaysia works with professional societies and it might be useful to share information on forthcoming events and seminars.

Dr. Charuporn noted that this had been the first time for Thailand to participate in the meeting and it had been very beneficial. She would report on the outcomes to her superior and hoped that

Thailand could participate in the future. It is essential for Asian countries to participate and hopefully issue directives like in the EU.

Prof. Nozaki noted that he would also engage in efforts to contact Myanmar, Singapore, Indonesia and Brunei again.

Dr. Mohammad Masrin Md Zahrin suggested that it would be nice to hold a session that involved donors themselves in the future.

Dr. Ayob raised the idea of collaborating in research on donor recruitment, safety and sustainability, noting that as there is much to be done in this area research collaborations could be very effective and could boost the number of publications originating from Southeast Asia.

Prof. Nozaki noted that the WHO Kobe Center is only engaged itself in policy research, but support could be provided for research grants for collaborative research among other institutions.

Dr. Quan suggested that it would be useful to create a unified questionnaire form to solicit answers from all countries. He also noted that Hanoi will be holding an event on World Blood Donor Day and representatives from other countries would be welcome to attend.

Closing Addresses

Dr. Yasmin Binti Ayob noted that when MBTS was approached to co-host this meeting it was a delight to do so, as it exemplifies the MBTS's mission to disseminate knowledge on transfusion medicine and blood banking. It is essential to protect donors and patients in transfusion medicine and blood transfusion societies are also responsible for the advancement of not only blood transfusion medicine, but medicine in general. The meeting has achieved its goals and beyond in nurturing regional cooperation, collaboration and sharing information.

Dr. Noryati noted that the PDN was honored to be involved in this meeting, the success of which is thanks to the participants, who have all been very open in sharing their ideas and strategies. The information that has been shared over the last two days provides ideas to all countries and it also provides lessons that it is imperative to remain up-to-date with the latest developments. It is important to harness the available international activities that relate to blood transfusion safety. During the meeting Malaysia had shared information on a new apps for blood ordering and blood donation and would be happy to share information on such tools for delivery. The closing of this meeting should not be an end, but rather a beginning for new collaboration and cooperation.

Dr. Noryati thanked Nagasaki University, MHLW, the MBTS and the Secretariat for their support for the meeting.

On behalf of Prof. Miyazaki, Prof. Nozaki expressed appreciation to the organizers at the MOH, PDN and MBTS and all participants from countries around Asia. He noted that the discussions that had taken place had been most fruitful and the opportunity to have frank and mutual interactions is of great value. It had also been a great opportunity for identifying key contact points in each country with regard to blood safety and blood donation. He expressed the hope that momentum would be maintained towards working together and sharing information. He noted that issues that require consideration are becoming ever more diverse and moving beyond response to only communicable diseases. In the years to come there will be various new issues to consider in blood transfusion medicine and it will continue to be vitally important to maintain collaboration.

A certificate of attendance was presented to all meeting delegates. Later in the afternoon the delegates took part in a tour of the National Blood Centre of Malaysia.

研究成果の刊行に関する一覧表

書籍

著者氏名	論文タイトル名	書籍全体の 編集者名	書 籍 名	出版社名	出版地	出版年	ページ
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