



**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**

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 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 · Prof. Shinjiro Nozaki, Nagasaki University
9:00	Report of last year’s meeting and history of research activities · Prof. Yasushi Miyazaki, Nagasaki University
9:30	Japan’s experience: How to sustain VNRBD based blood programme implementation · 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> · Presentations by Cambodia, Malaysia, Philippines, Vietnam and Thailand <i>Part 2: How to keep safety blood programme linked to global health problems?</i> · Mr. Jun Fukuyoshi, Nagasaki University
12:30	“Towards self-sufficiency in blood and blood products based on VNRBD: Global status, challenges and strategies” · 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 · Malaysia, Lao PDR, Cambodia, Philippines, Thailand, Vietnam
15:30	Opening ceremony · 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 · 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 · 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: · 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% VNRBD, 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 Penh 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 meetings 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 thanks 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.