Milestones and Results of Voluntary Non-Remunerated Donation (VNRD) Program in Taiwan

Ching-Chuan Yeh, M.D.,M.P.H.

President

Taiwan Blood Services Foundation

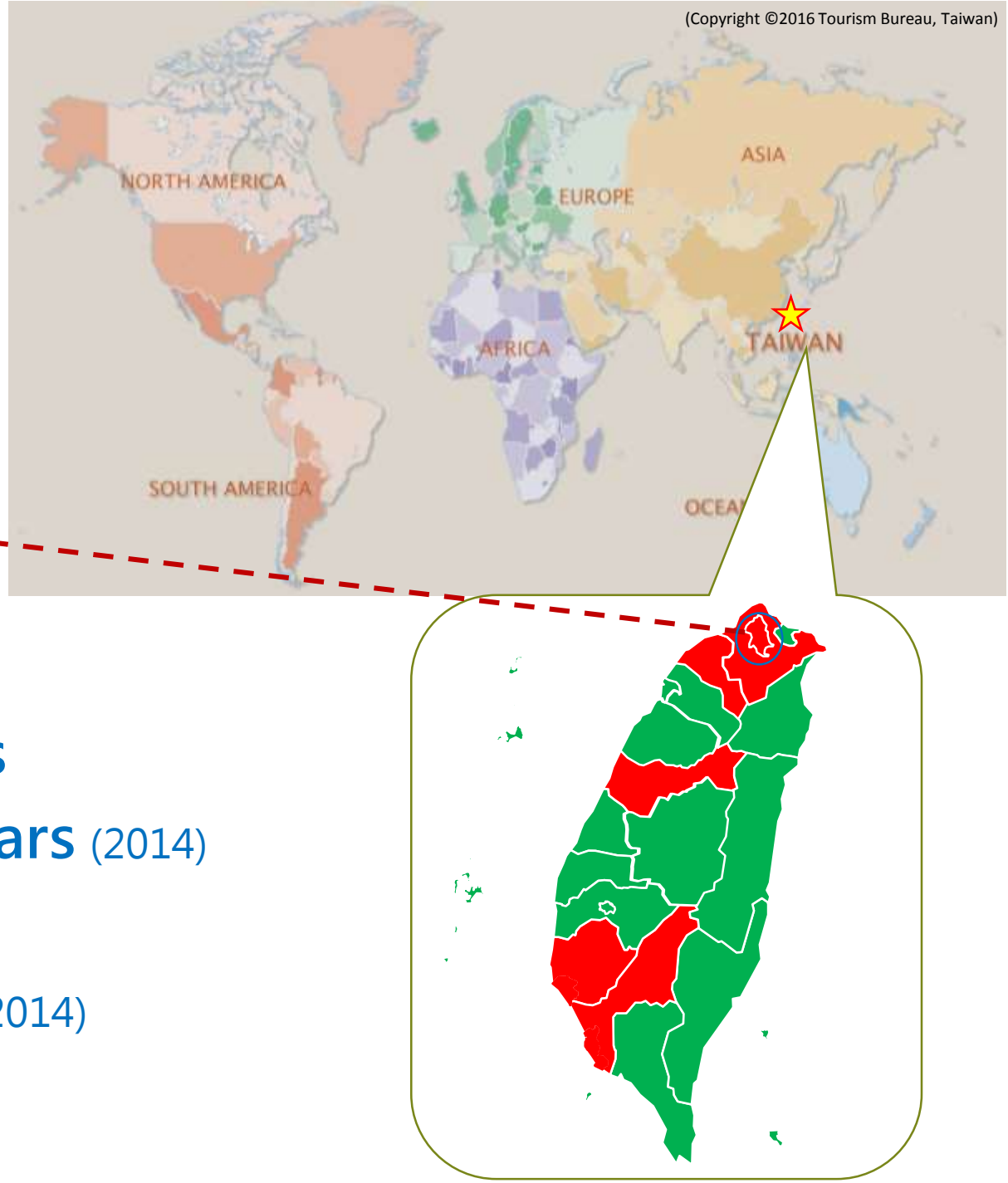
IPFA, 8-9 March 2016, Taipei, Taiwan

Outline of the presentation

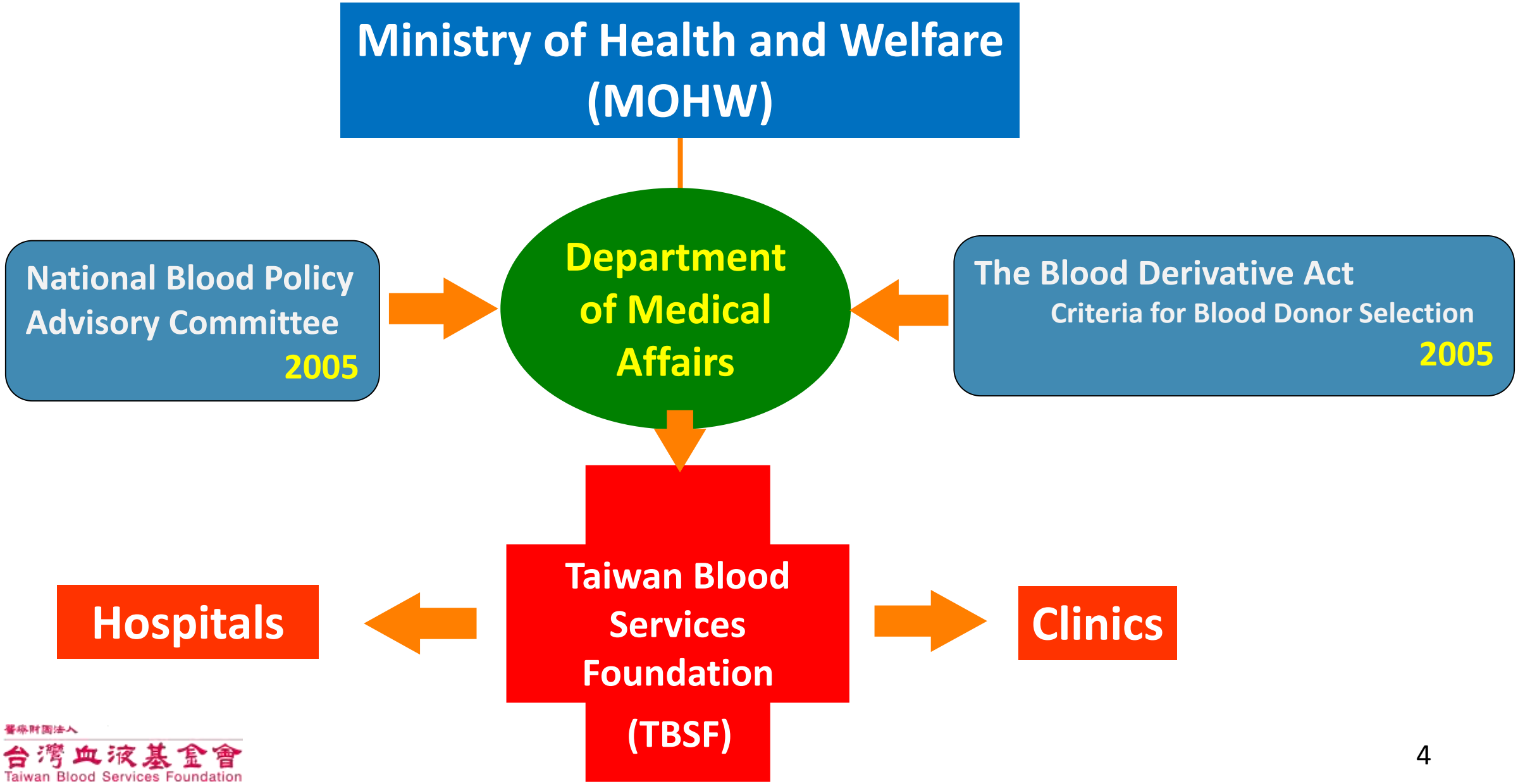
- Taiwan at a glance
- Brief introduction of Taiwan Blood Services Foundation (TBSF)
- Donor recruitment and selection
    - Historical review
    - Donor recruitment
    - Young Blood program
    - Donor retention
    - Donor selection
- Plasma contract fractionation

Taiwan at a glance

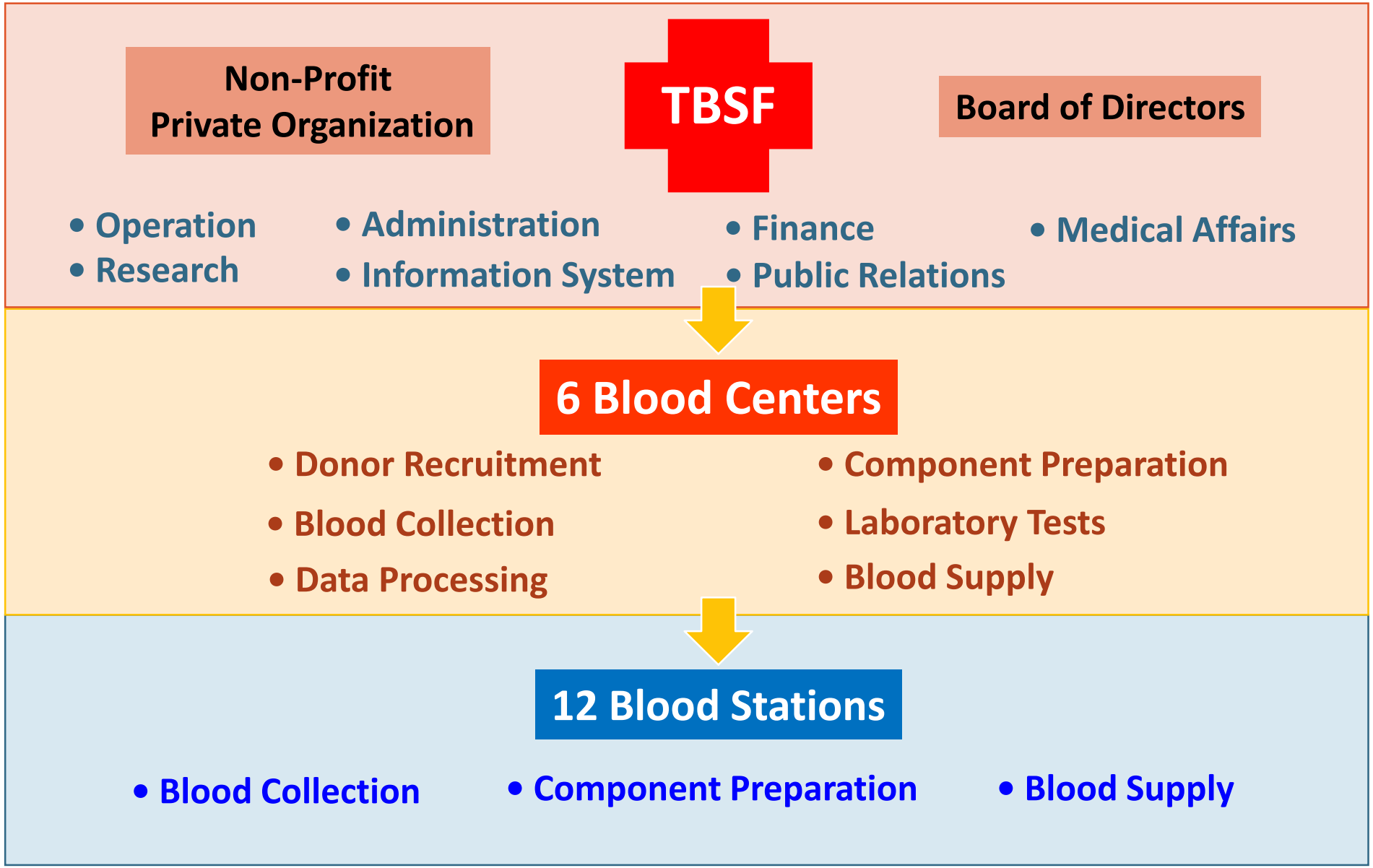
- Area: 36,000 km^2
- Population: 23 million
- Capital: Taipei City
- GDP per capita: 22,355 USD (2015)
- 6 metro cities, 15 cities/counties
- Life expectancy: Male 76.72 years
  Female 83.19 years (2014)
- Infant mortality: 2.2 per 1,000 (2014)
- Maternal mortality: 6.6 per 100,000 (2014)



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Ministry of Health and Welfare (MOHW)
Department of Medical Affairs
National Blood Policy Advisory Committee 2005
The Blood Derivative Act
Criteria for Blood Donor Selection
2005
Taiwan Blood Services Foundation (TBSF)
Hospitals
Clinics

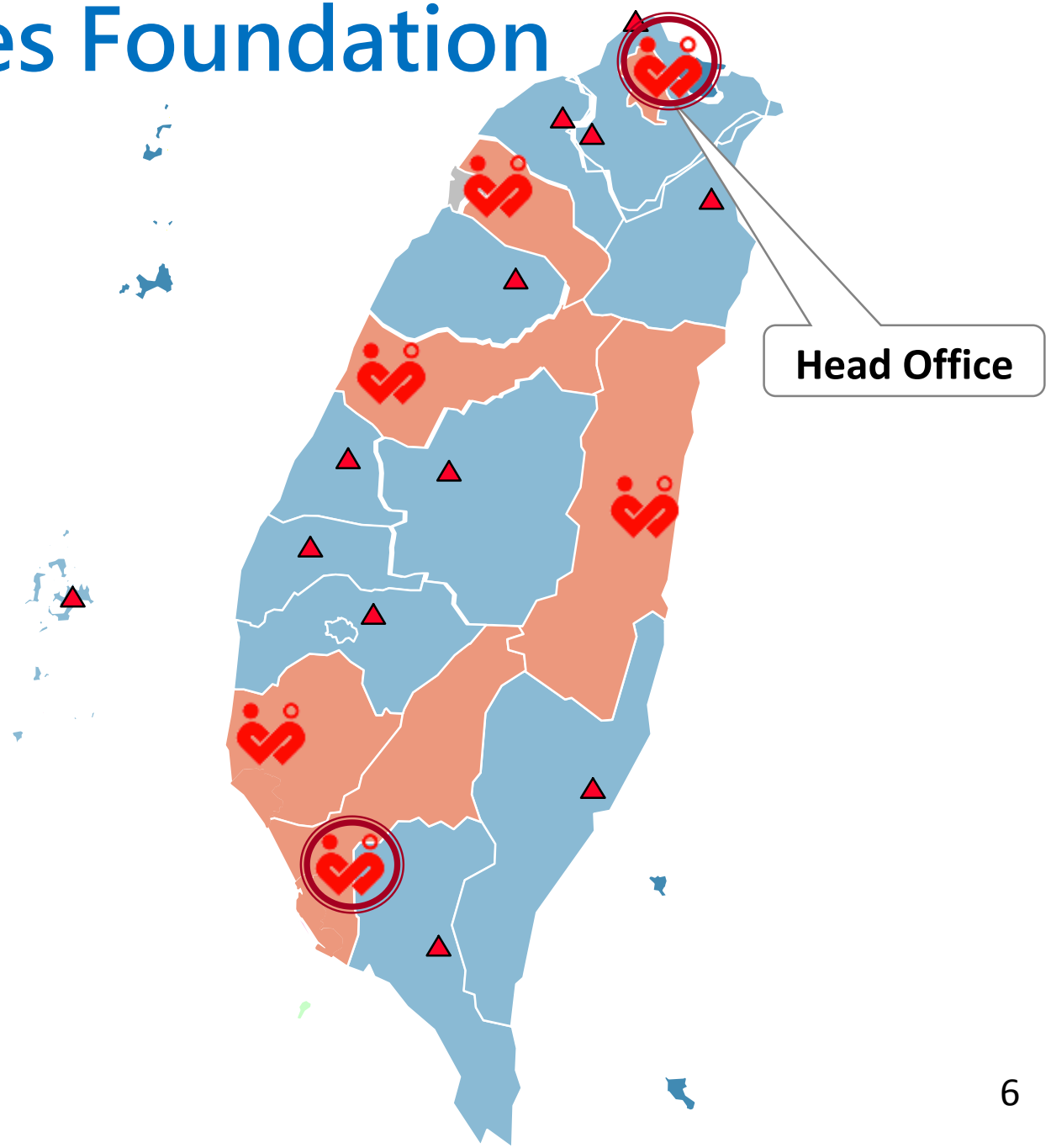
Organization of Taiwan Blood Services Foundation



Taiwan Blood Services Foundation

- 6 Blood Centers
- 12 Blood Stations
- 2 Laboratory Centers

59 Fixed Blood Collection Sites




捐血救人




台南捐血中心
台南捐血中心



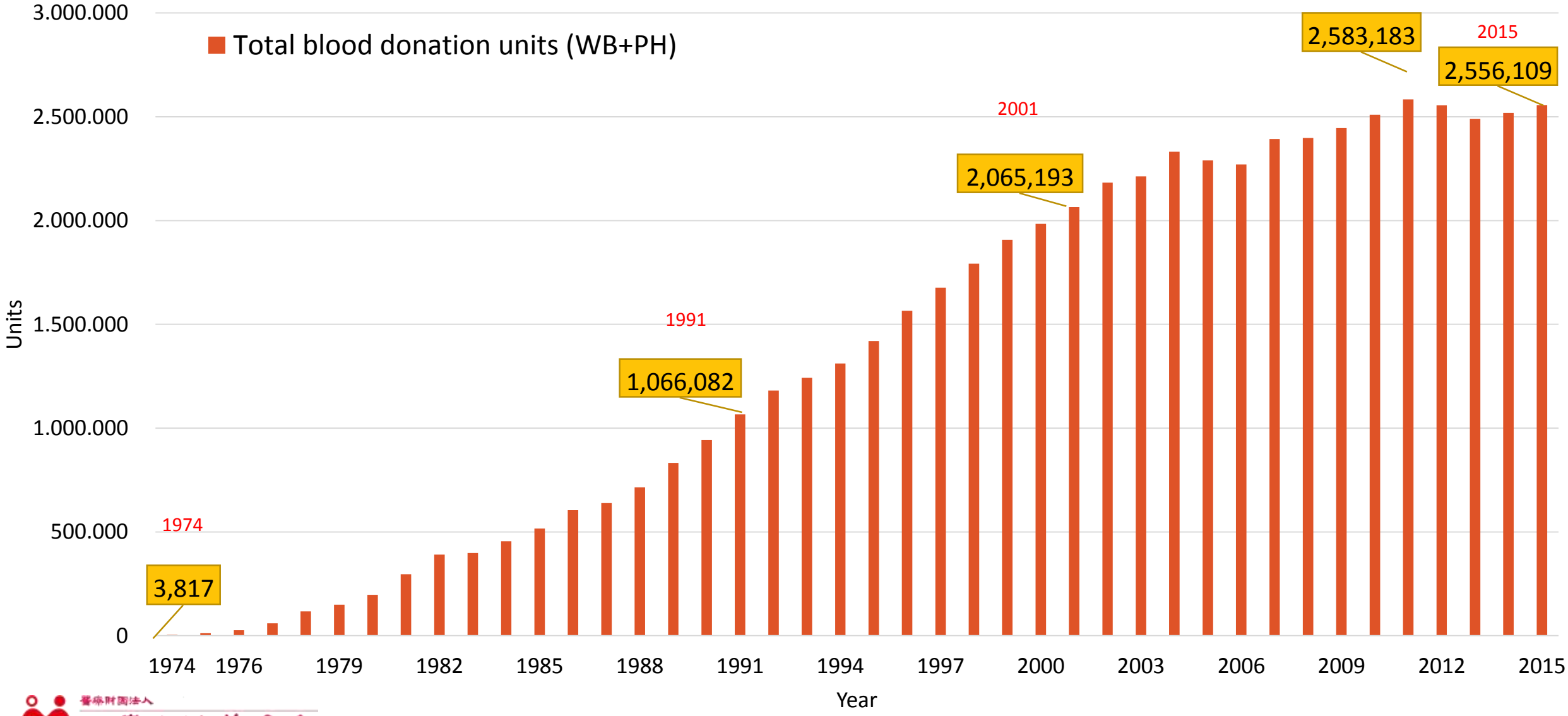

高雄捐血中心





Year	Description
1974	**Taiwan Blood Donation Association** **Taipei Blood Center**
1975	**Taichung Blood Center**
1976	**Kaohsiung Blood Center**
1981	**Tainan Blood Center**
1990	**Taiwan Blood Donation Association** (Ministry of Interior) **Taiwan Blood Donation Services Foundation** (Ministry of Health and Welfare)
1991	**Hualien Blood Center**
1992	**Hsinchu Blood Center**

Annual Blood Collection Units, 1974-2015



Year	Description
Before 1987	Hospital-based paid donor blood bank Community-based Red Cross paid donor blood bank
1974	Taiwan Blood Donation Association established (Duel system: the coexisting paid donor system and VNR donor system)
1974 - 1990	Social Campaign of Voluntary NR Blood Donation
1987	Paid donor prohibited Hospital-based and Red Cross paid donor blood banks closed
1995	National Health Insurance (NHI) inaugurated, and the blood, blood components and blood products are fully reimbursed by NHI.





上｜一九八四年，我發起捐血活動，邀請羅大佑（左一）、劉瑞琪（左二）、虞戡平導演支持。

下｜我發起「做個快樂捐血人」活動，邀楊貴花拍攝電視廣告，左二為葛福鴻、左三為虞戡平，攝於一九八四光啟社。













醫療財團法人
台灣血液基金會
捐血救人 Taiwan Blood Services Foundation



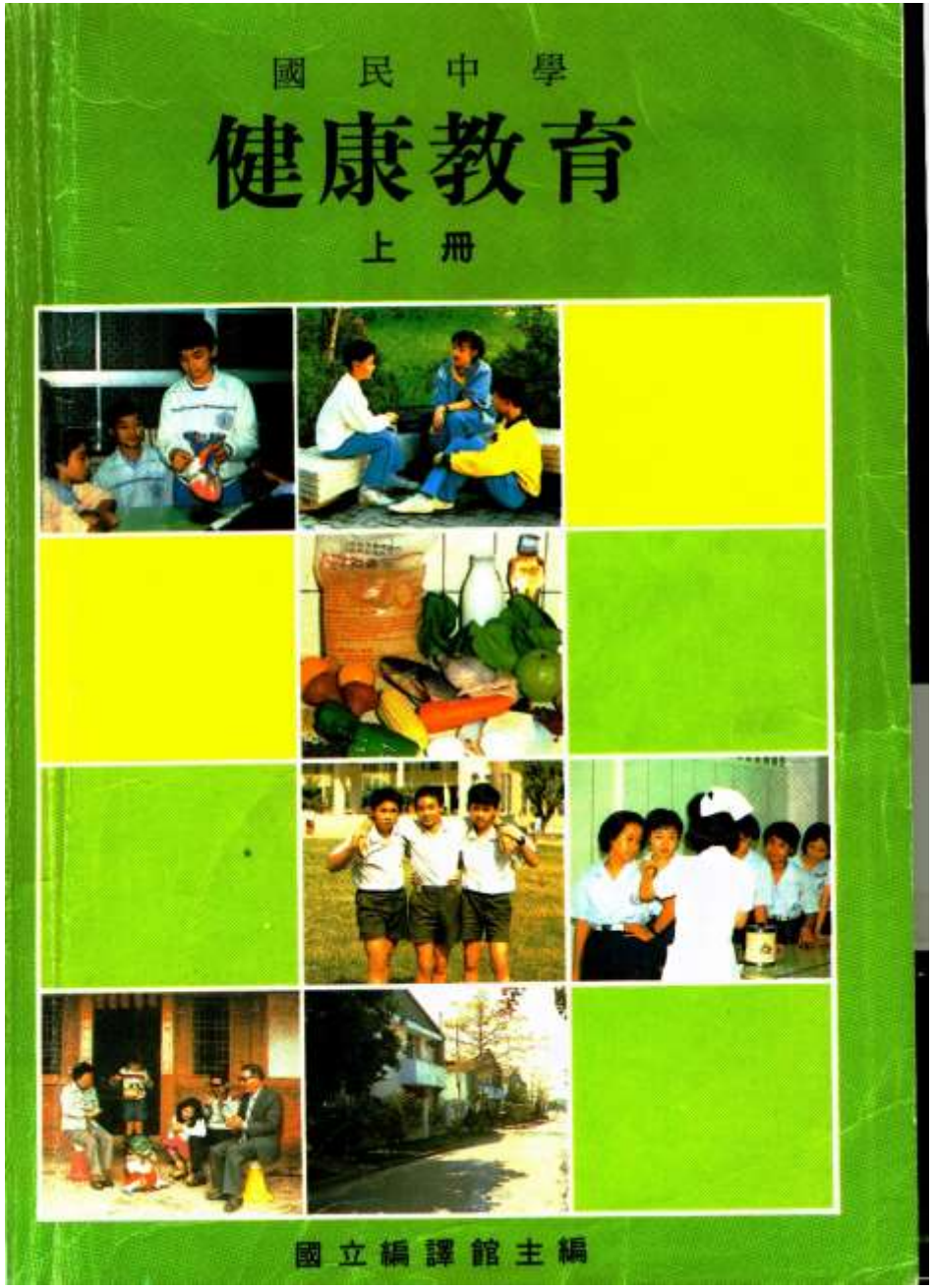
前總統李登輝先生長期支持捐血運動，為首位挽袖捐血的國家元首。



前總統陳水扁先生於91年6月6日響應臺大醫院捐血活動，完成第6次捐血紀錄。



總統馬英九先生於台北市長任內經常利用午休時間前往市府捐血室參加「分離術捐血」，目前捐血178次。



第三節 血量、失血、輸血和血型

人體的**血量**，約占體重的十三分之一。

血液流出血管之外叫**失血**。少量的失血，由於身體有調節作用，並無危險。但大量失血時，需要立即**輸血**，以補充所失去的血液，否則，可能危及生命。

輸血對於因外傷或疾病失血過多的人，是必需的。有些外科手術，必須在手術過程中輸血，才能使手術繼續進行。輸血時所用的血液，是由捐血人給予受血人，或由**血庫**供應。但所輸的血液與受血人的血液必須能配合，否則會發生血凝塊，堵塞小血管，因而危及生命，所以輸血時應該用同型的血液。捐血時，僅輸出二百五十西西的血液，量並不多，體內可再生補充，所以捐血（圖 I-6-2）是對別人有益，對自己無害的善舉，值得提倡、響應。但年老及體弱的人，不宜捐血。



圖 I-6-2 青年學生踴躍捐血

根據人類血液相互間會不會發生凝集的特性，血液可分爲許多型別。主要的**血型**有O型、A型、B型及 AB 型。除此以外，每個人的血型還分 Rh 陽性和 Rh 陰性。血型是遺傳的，藉血型的鑑定，可以判定親子關係。




陽明高級工商職業學校104學年度第一學期開


我 ♥ 捐 血

A nationwide social campaign

Advocate voluntary non-remunerated blood donation and disclosure the high risks of paid donors.

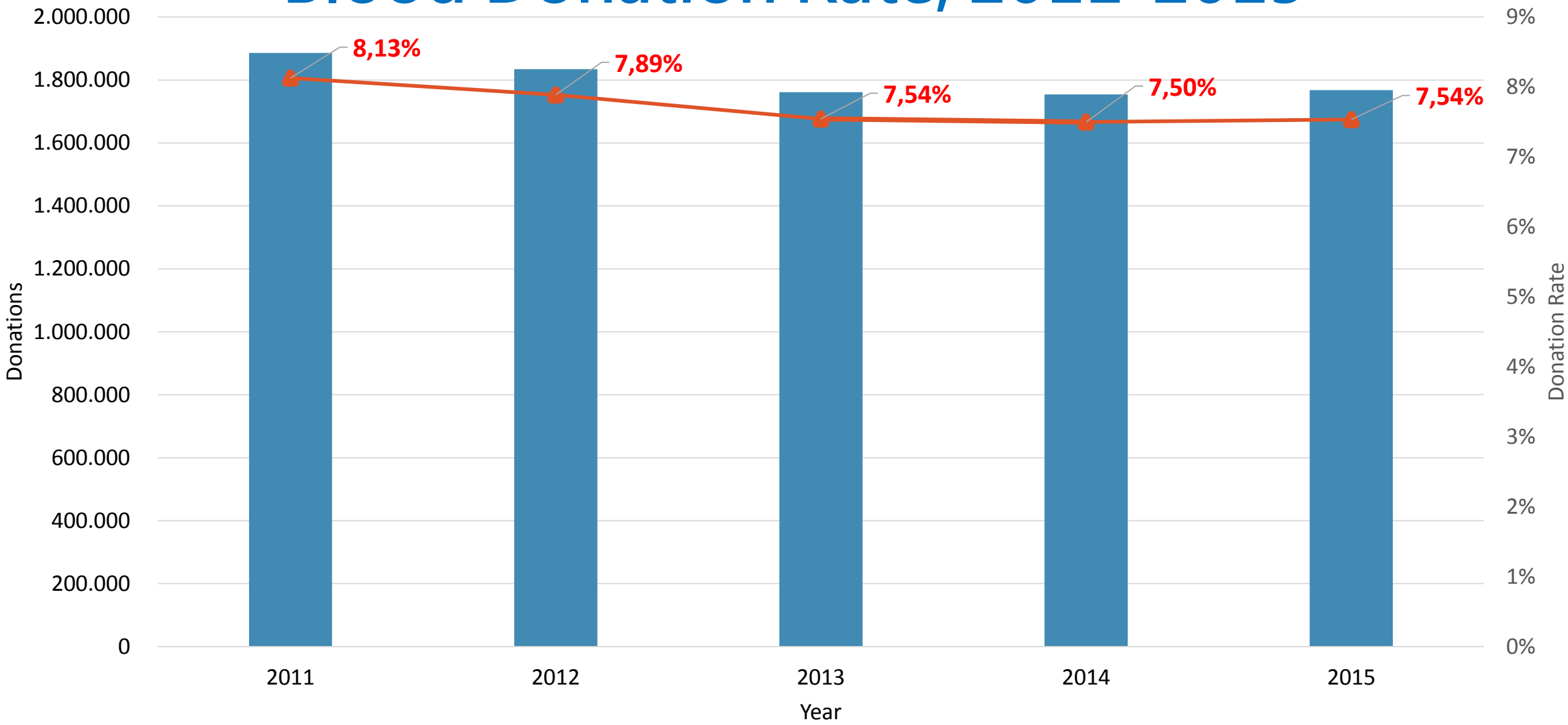
By the celebrities, movie stars, singers, musician, politicians, medical societies, military units, blood donation association and government (Included Ministry of Education, Ministry of Defense, and Ministry of Health and Welfare).

- **Since then, the blood donation has grown along with advancement in medical care and national health insurance, and the units peaked at 2,583,138 in 2011 and the whole blood donation rate is 8.13 %.**

- **In 1996, an article in *Transfusion* recognized Taiwan's blood services as one of the fourteen advanced countries in the world with a single national blood program.**

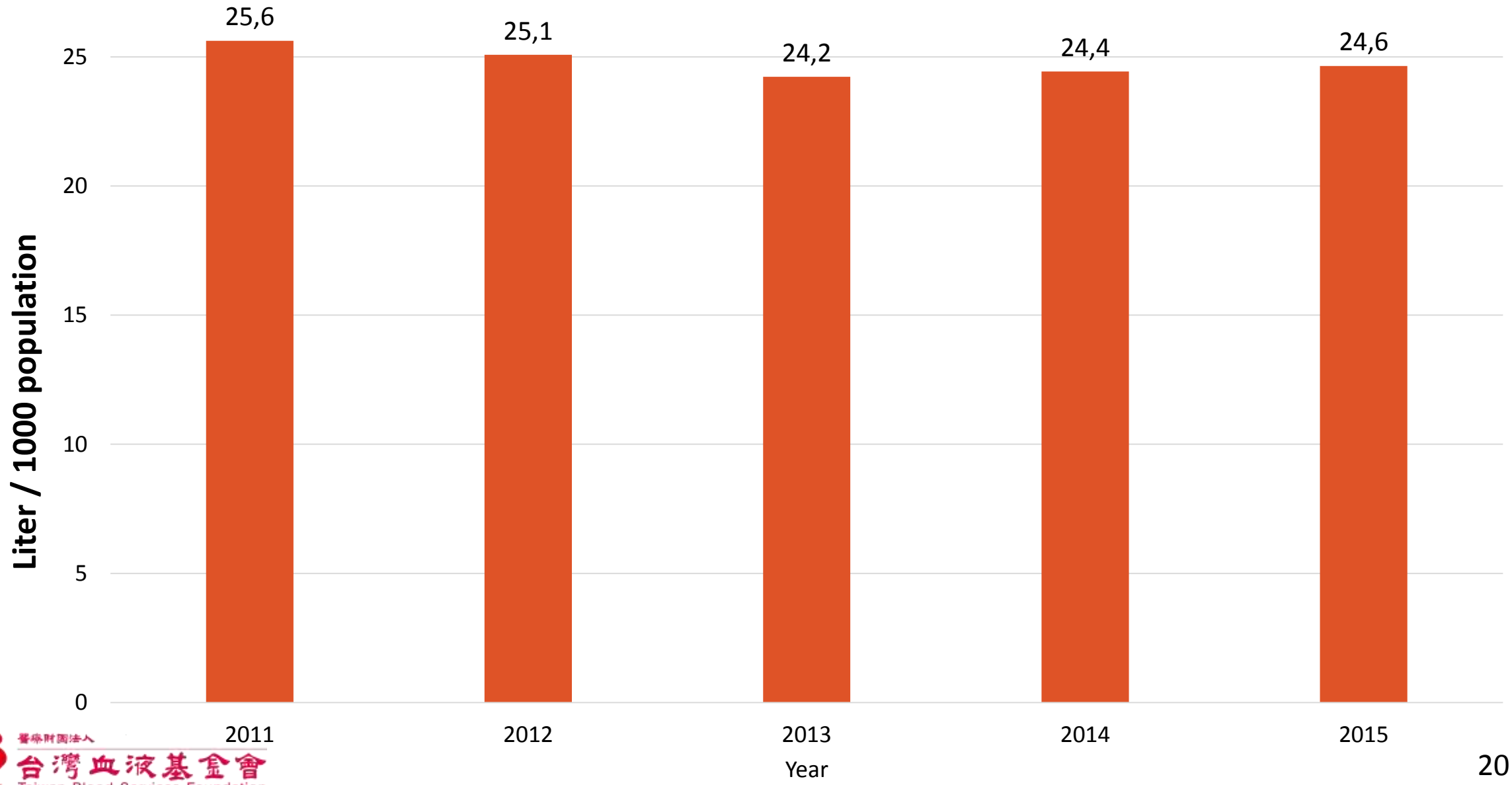
- **Blood donation rate (WHO, 2012)**
  - **High income countries 3.68%**
  - **Middle income countries 1.17%**
  - **Low income countries 0.39%**
- **Taiwan blood donation rate 7.54% (2015)**

Blood Donation Rate, 2011-2015

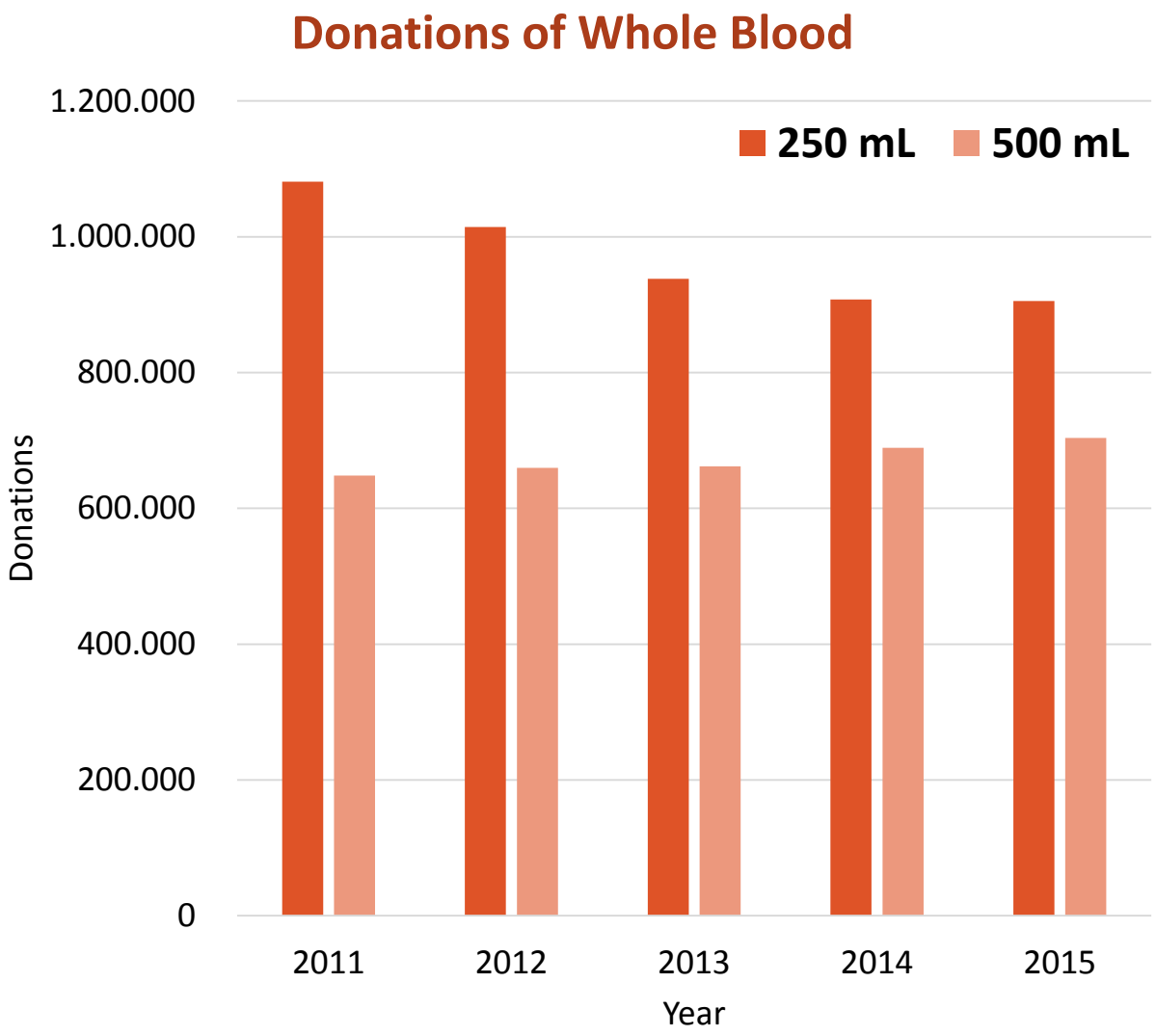


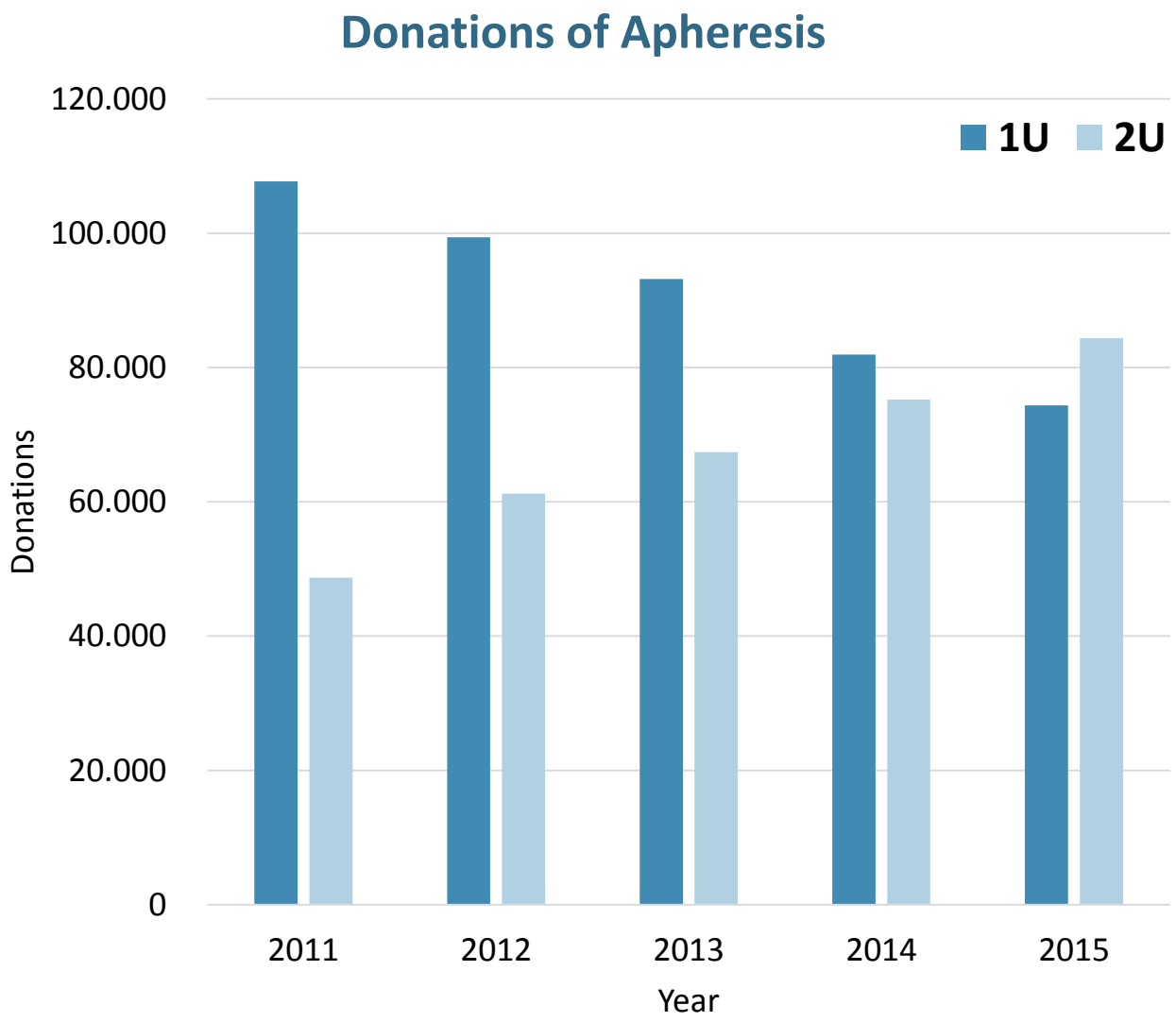
- **Blood donation rate = Donations (WB+PH) / Populations**

Whole Blood Collection per 1000 population, 2011-2015



Increasing double units WB and Apheresis Donation



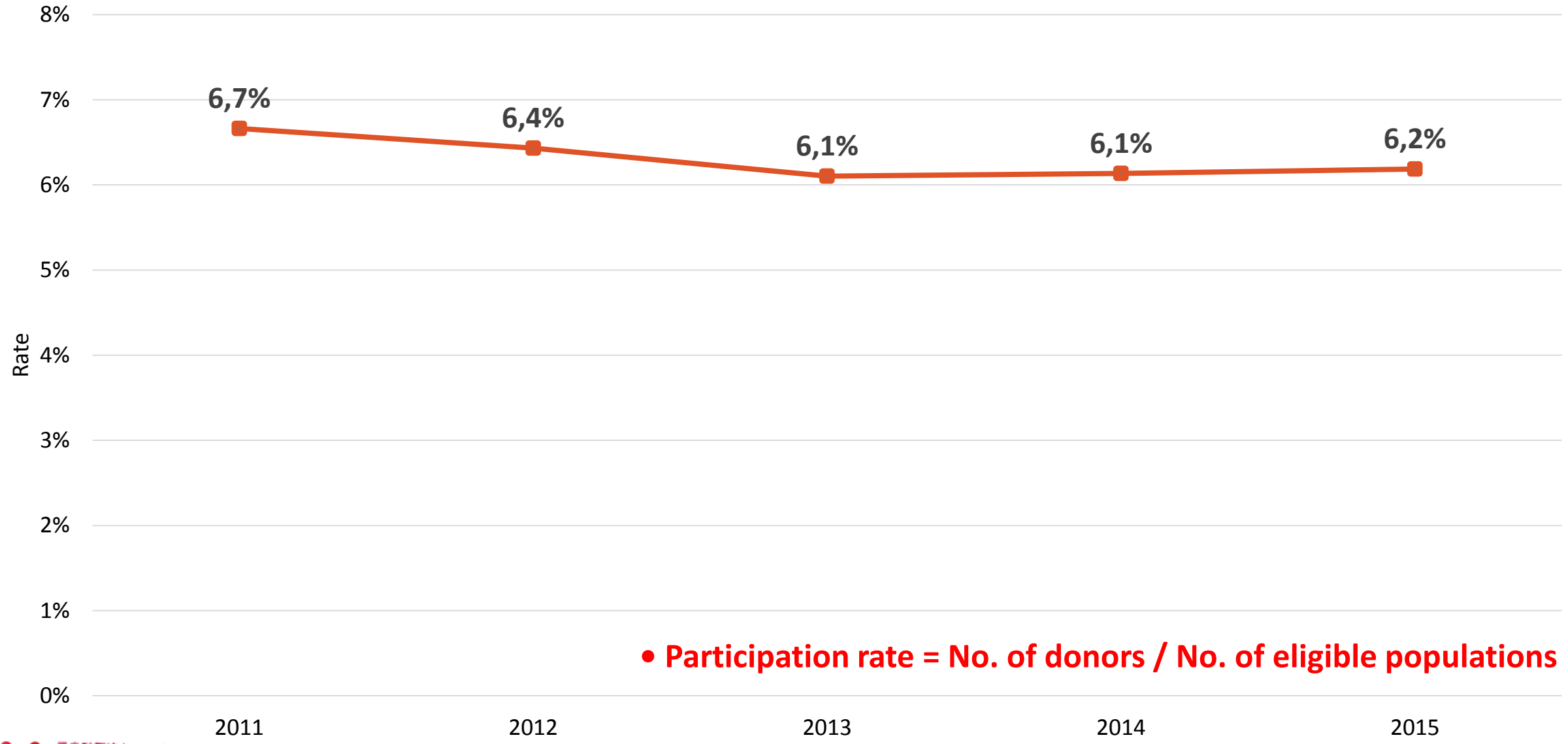


The Facts

The blood donation is a common practice among Taiwanese.

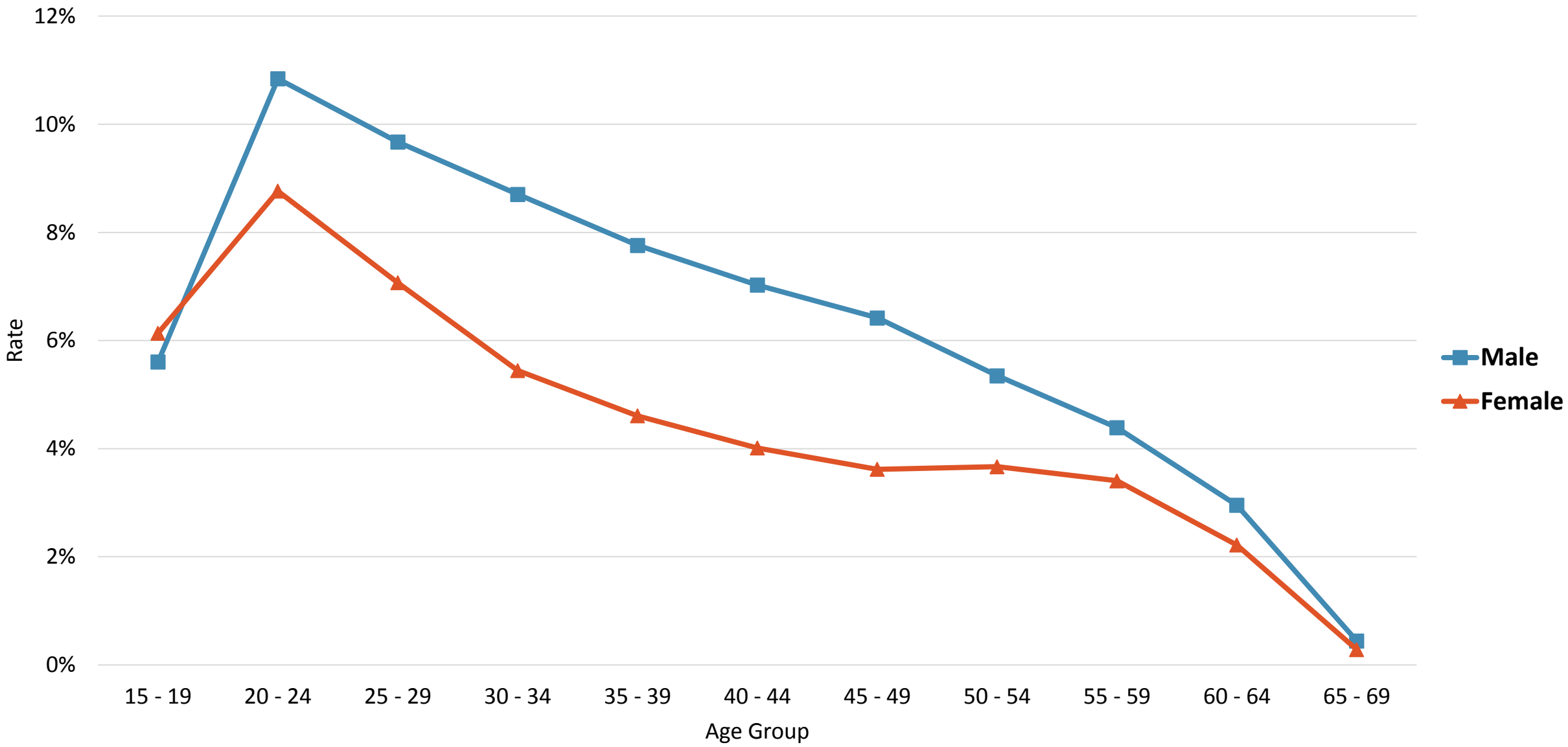
- **23 million population**
- **7 million ever donate blood**
- **1 million donate blood in 2015**
- **1.8 million donations in 2015**
- **2.5 million units(250 ml) of WB collected in 2015**
- **220,000 units(standard unit) of platelets collected in 2015**

Donor Participation Rate, 2011-2015

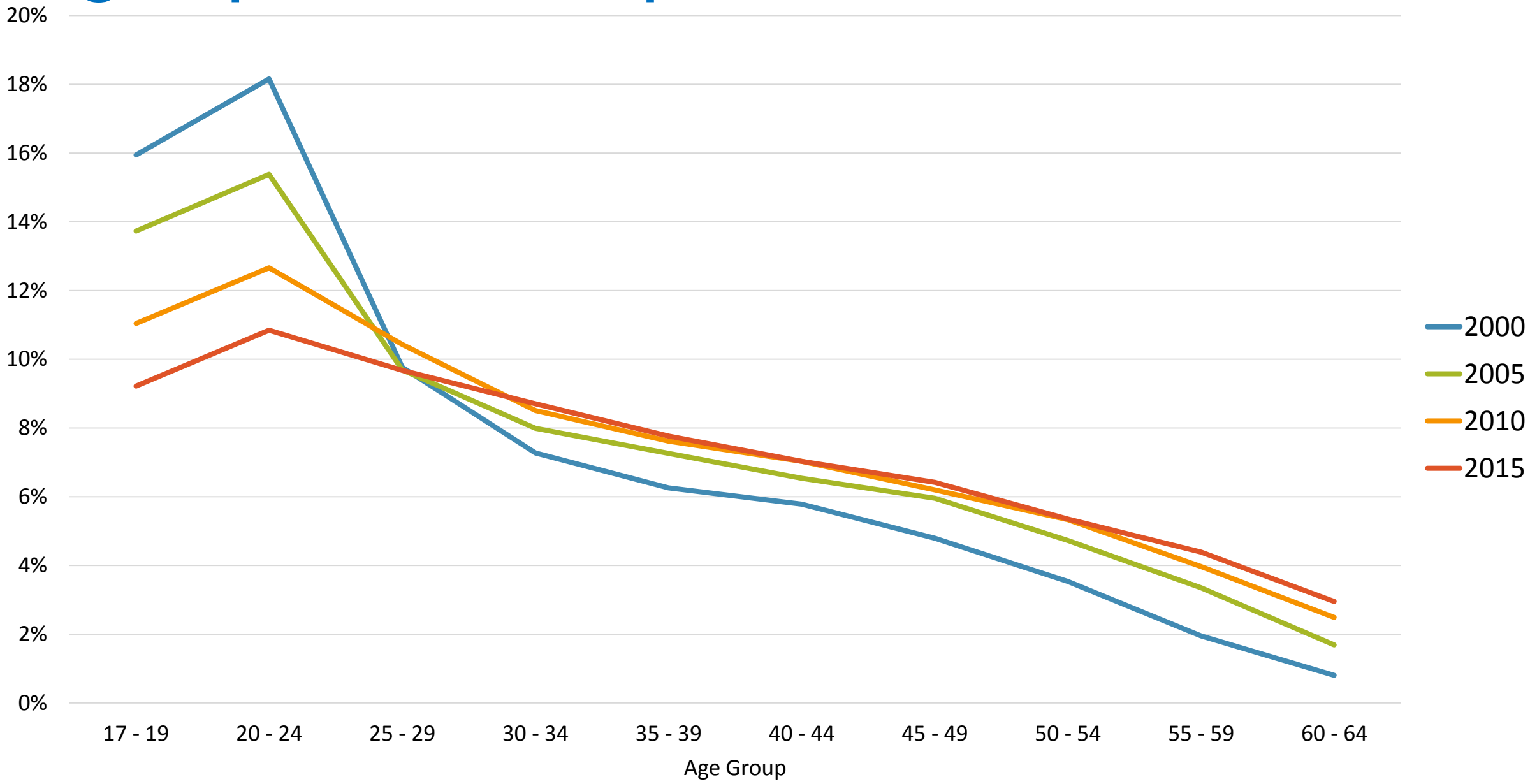


- **Participation rate = No. of donors / No. of eligible populations**

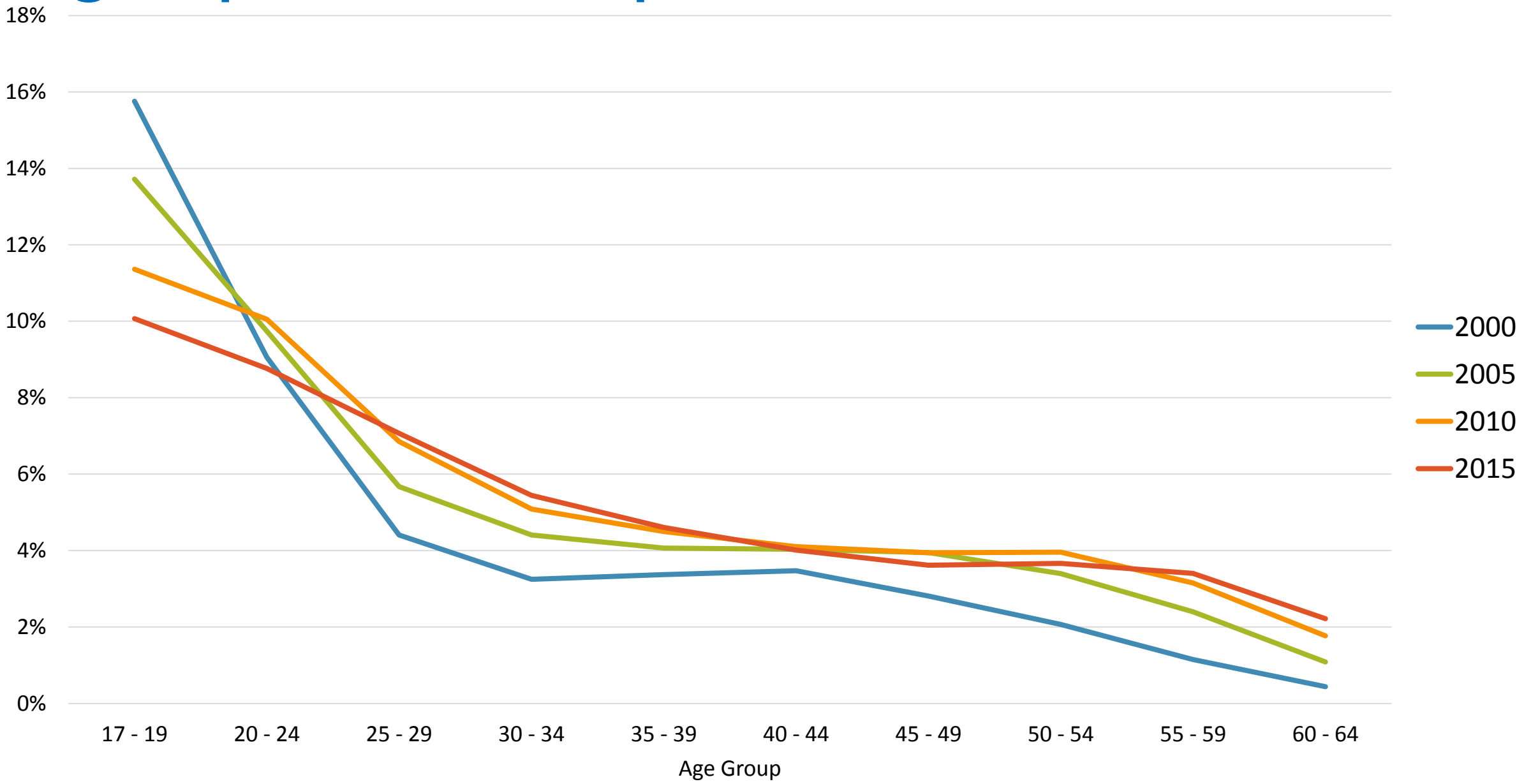
Participation Rate by Age and Sex, 2015



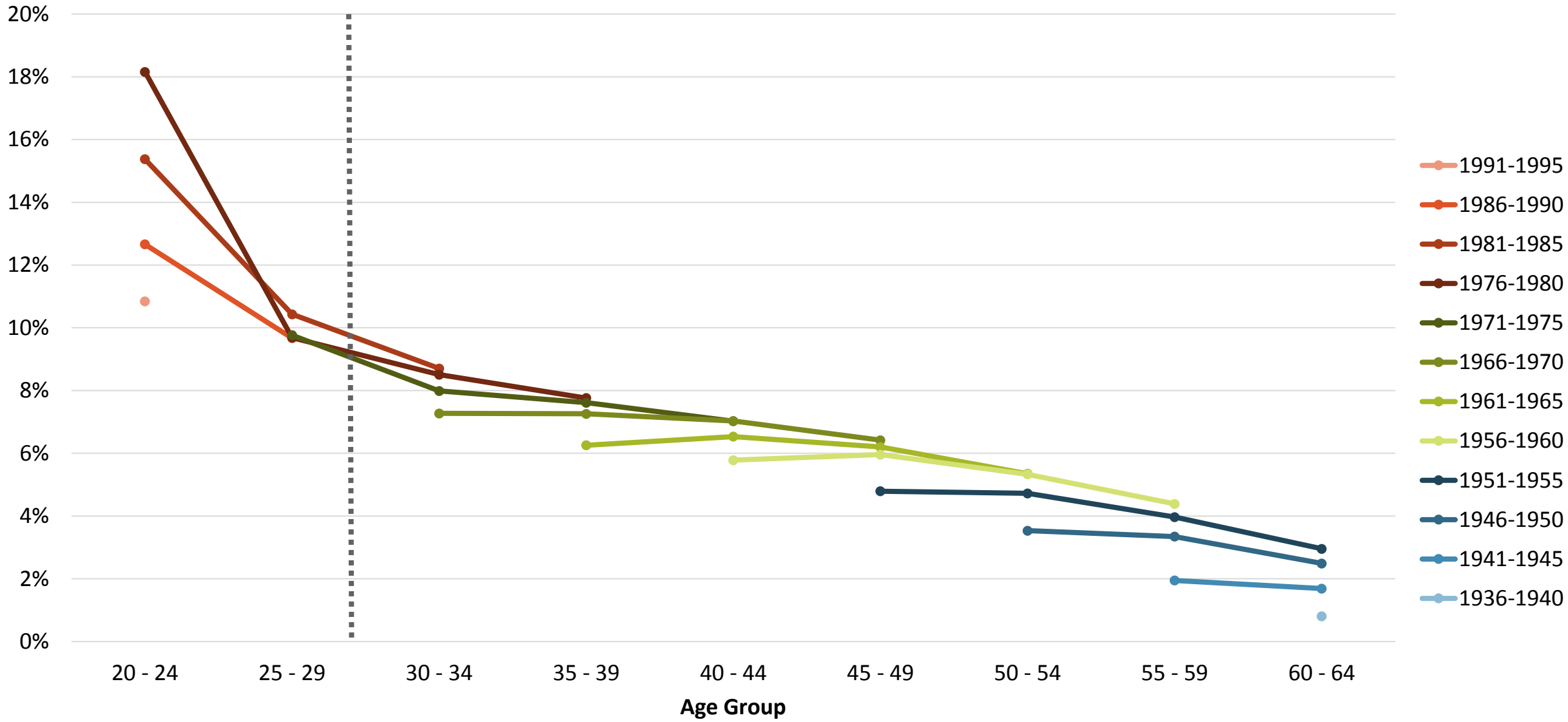
Age-Specific Participation Rate in Males



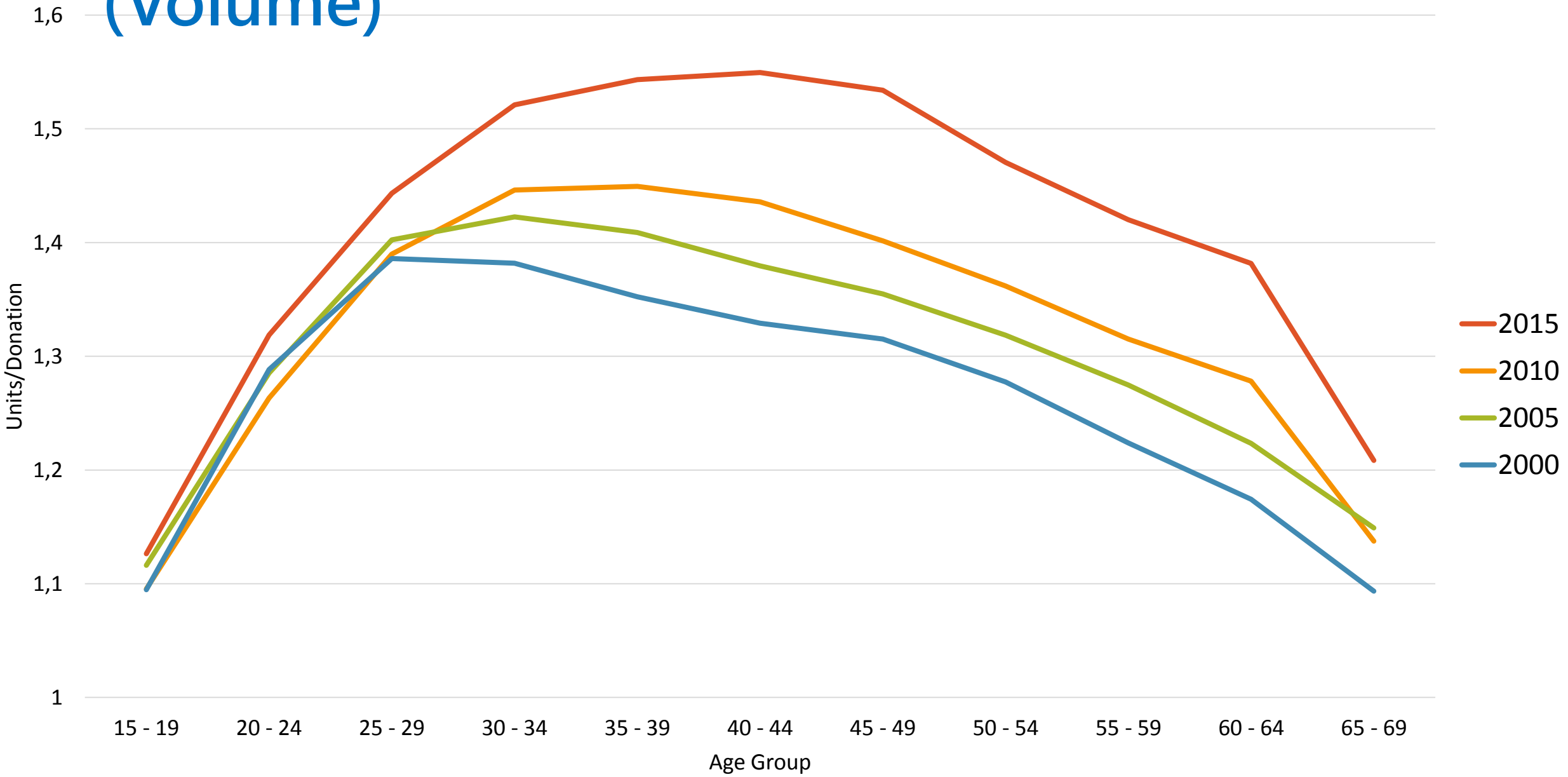
Age-Specific Participation Rate in Females



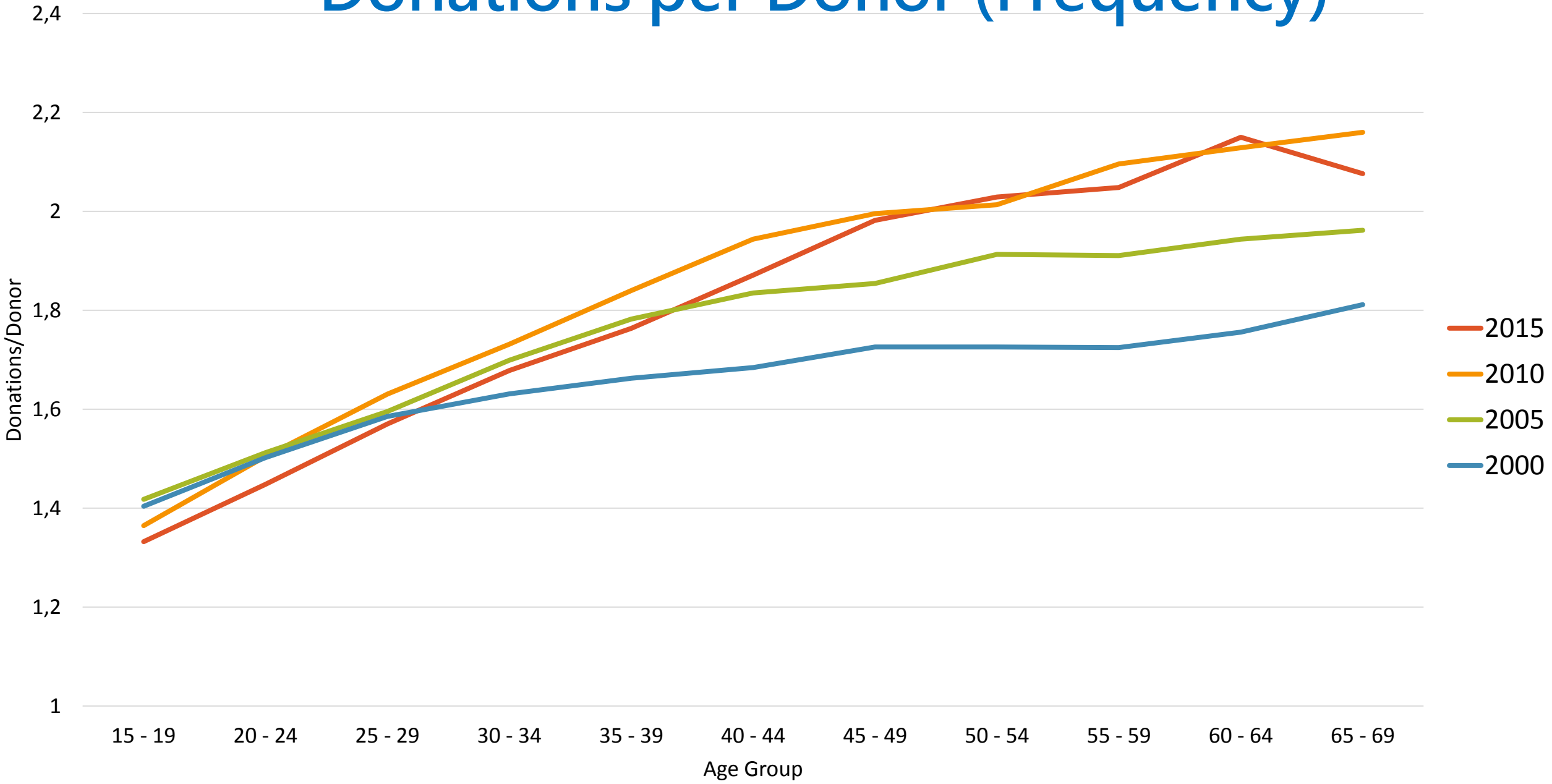
Cohort-Effect of Participation Rate



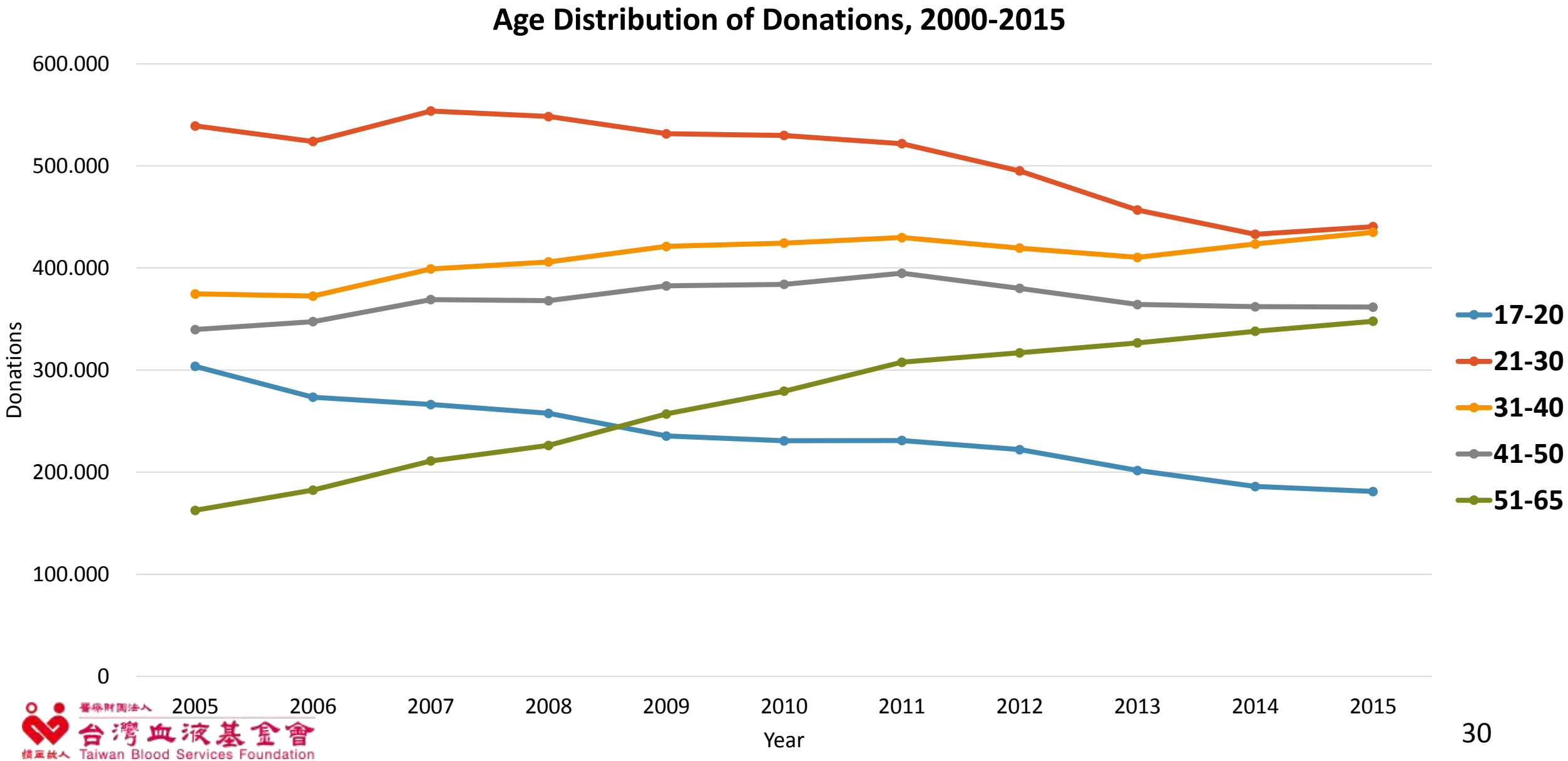
Donation units per Donation (Volume)



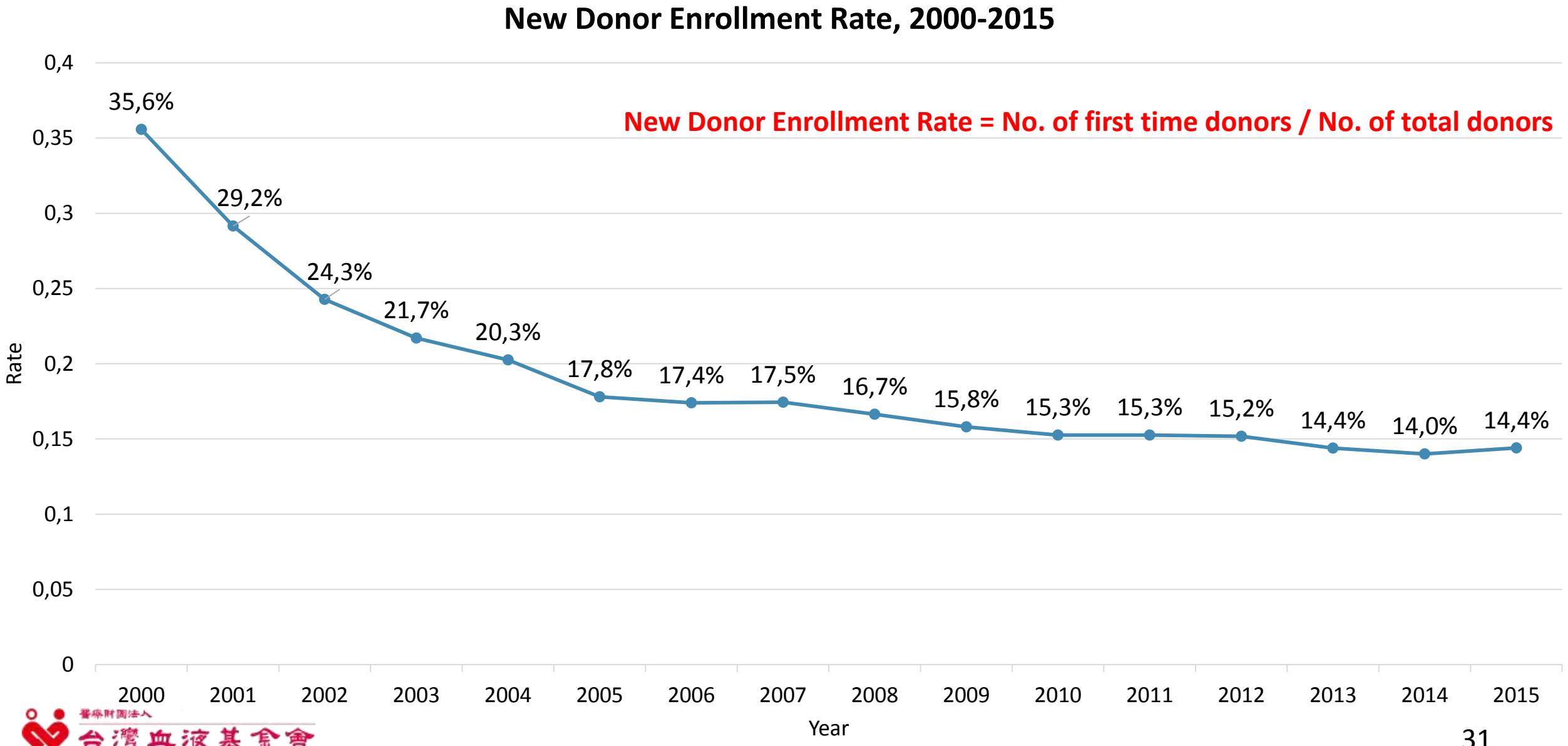
Donations per Donor (Frequency)



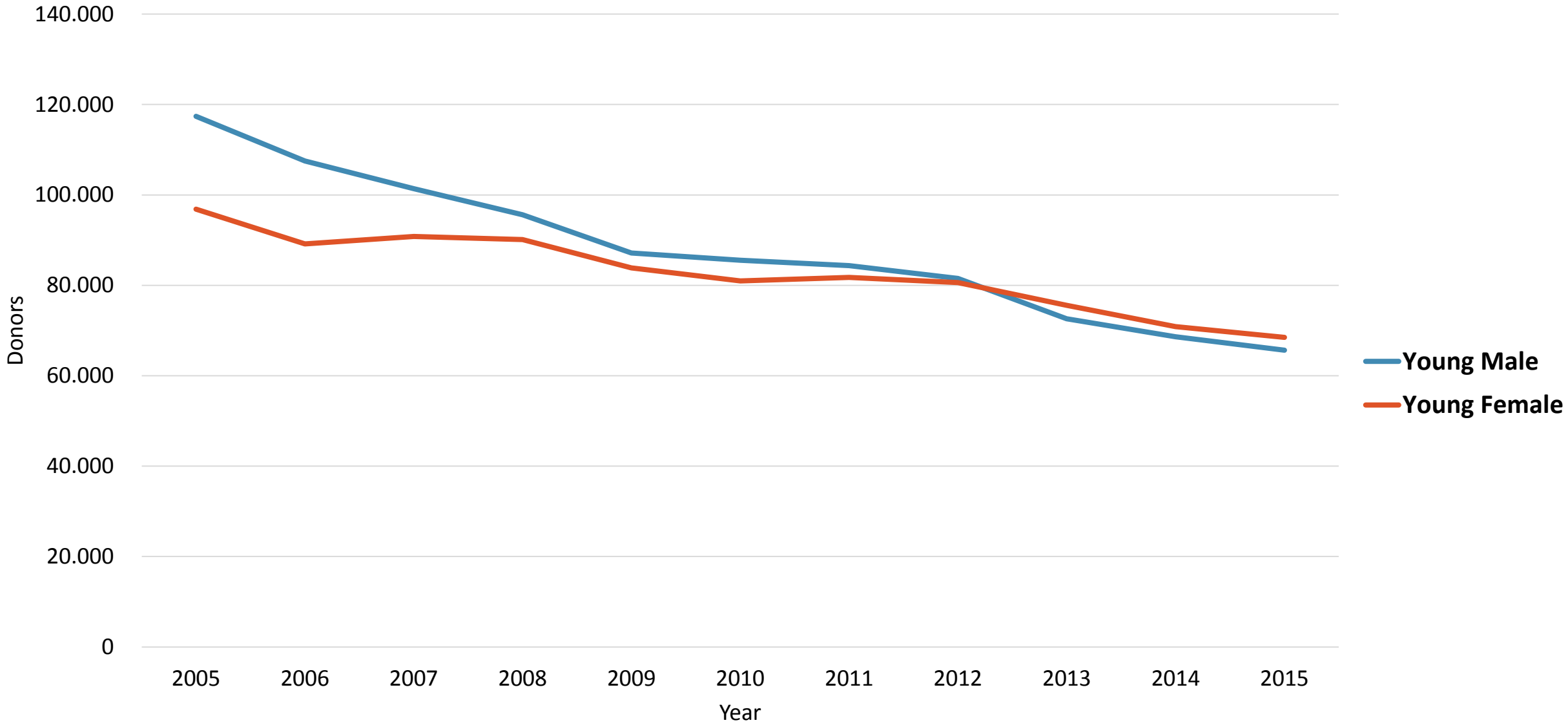
A Decline Trend of Young Donors



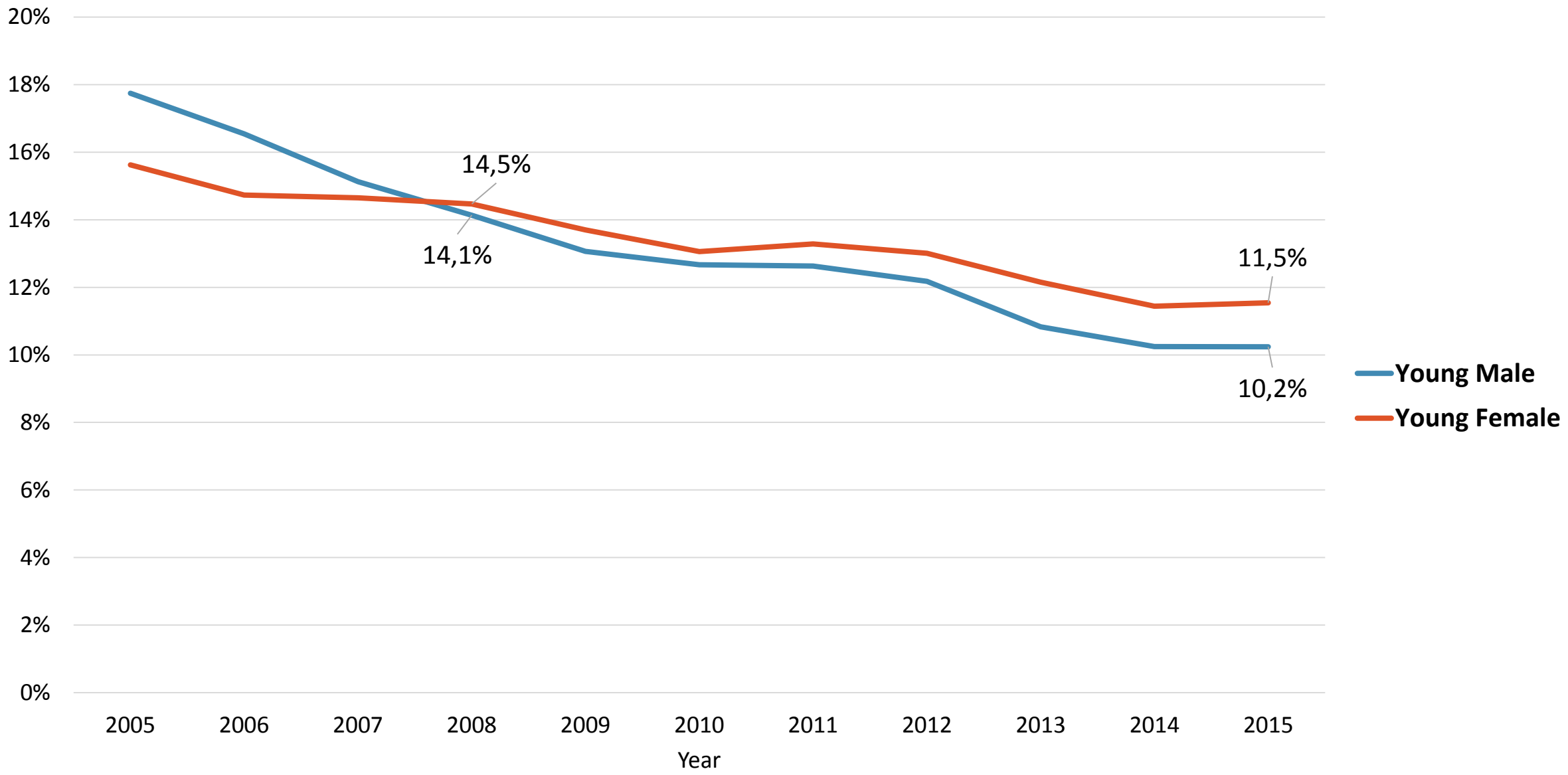
A Decline Trend of First Time Donors



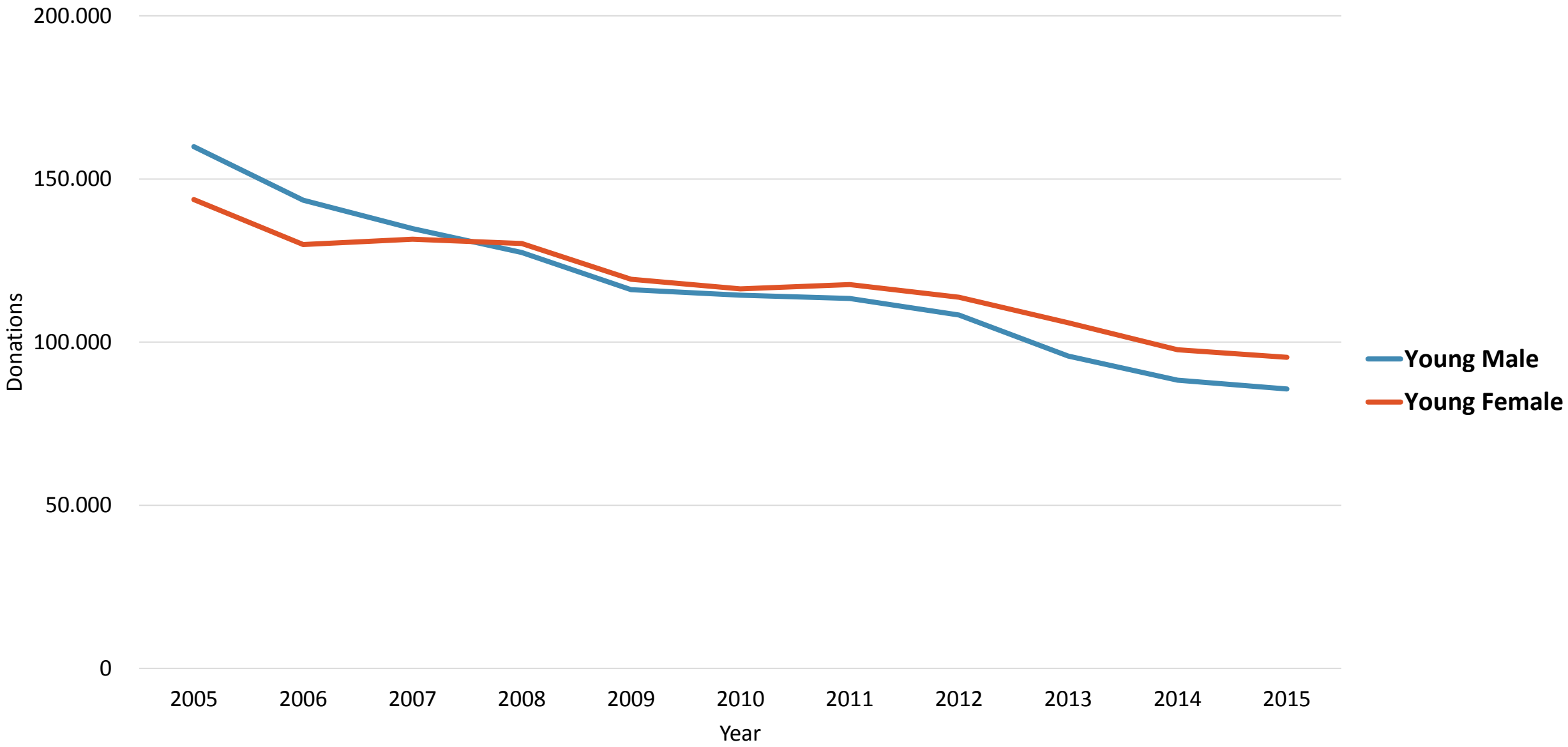
No. of Donors in Age 17-20, 2005-2015



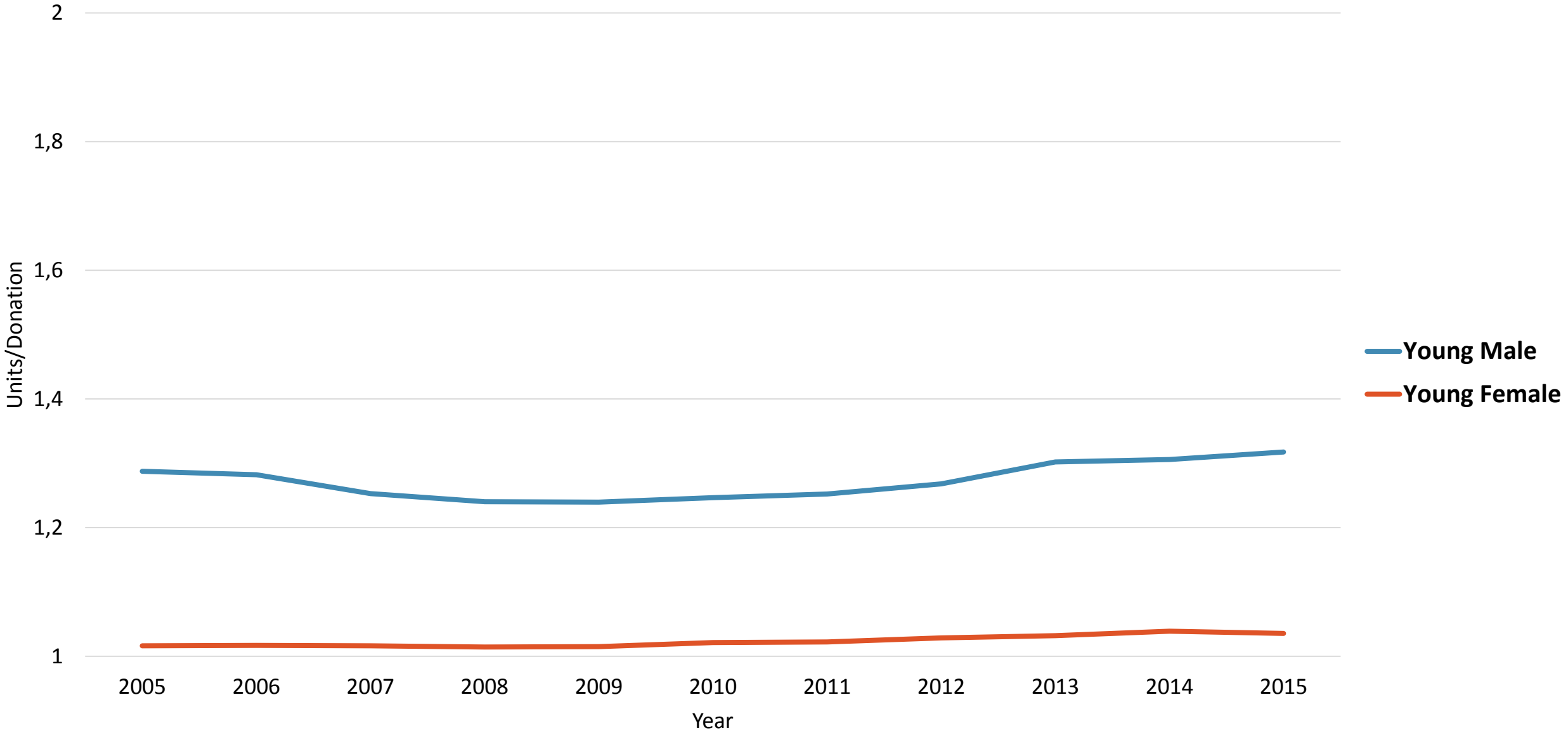
Participation Rate in Age 17-20, 2000-2015



Donations in Age 17-20, 2005-2015



Donation Units per Donation in Age 17-20, 2005-2015

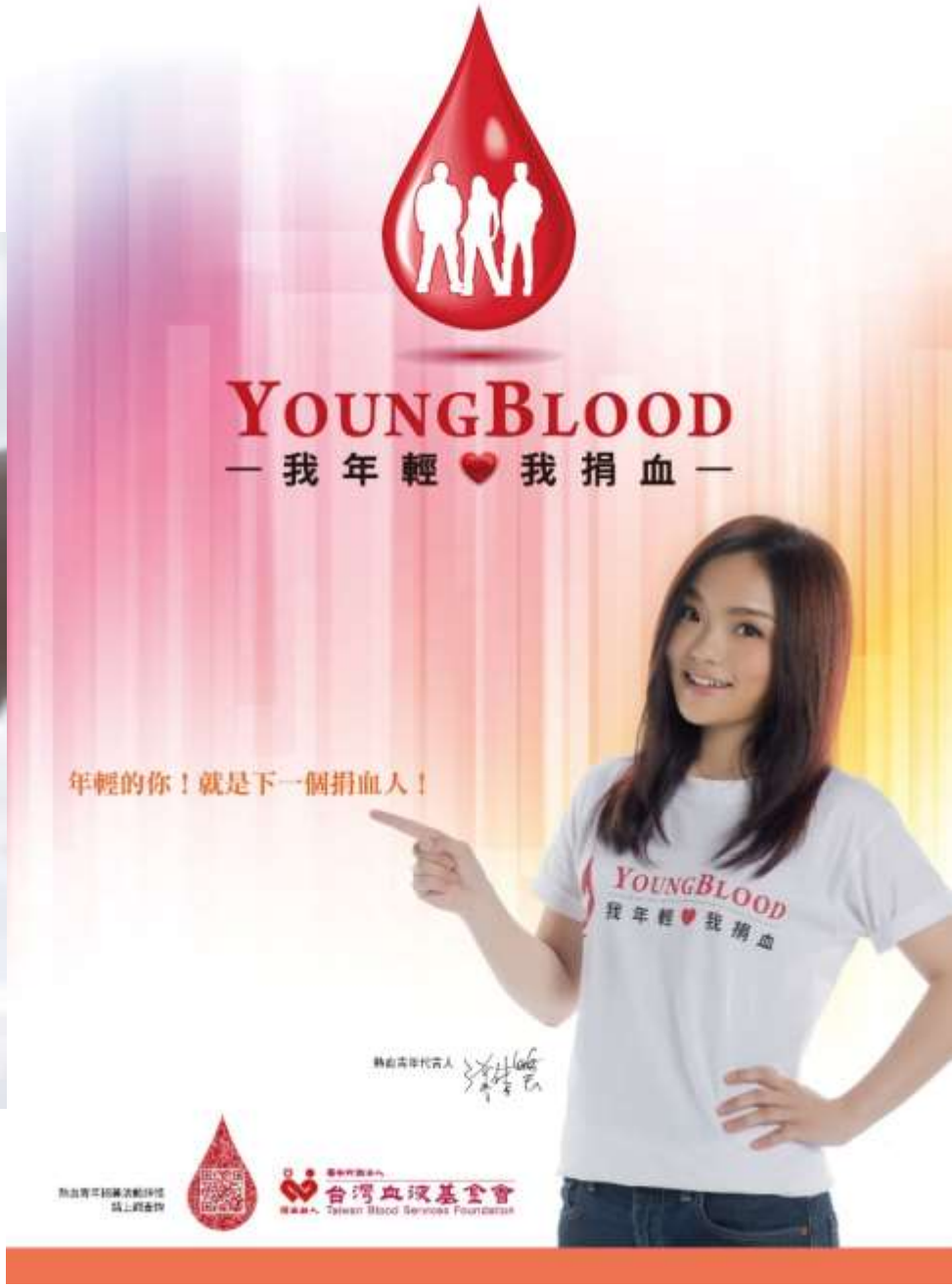


- For young donors, the size of eligible population, blood donation participation rate, and donation frequency are all decreasing.

- Only double units donation (500ml) increased a little bit among the young male adults.

2015 Young Blood Program





醫療財團法人
台灣血液基金會
捐血救人 Taiwan Blood Services Foundation

Retention of Donor - Donor Health

Body weight, height, BMI — **Routine check-up**

Blood pressure

Hb

CBC for apheresis donor

Ferritin for first time donor and frequent donor — **Study**

Total Cholesterol, Low Density Cholesterol — **Health check-up**

HbA1c , — **for frequent donor**

Liver Ultrasound Scan

Retention of Donor - Facility and Environment





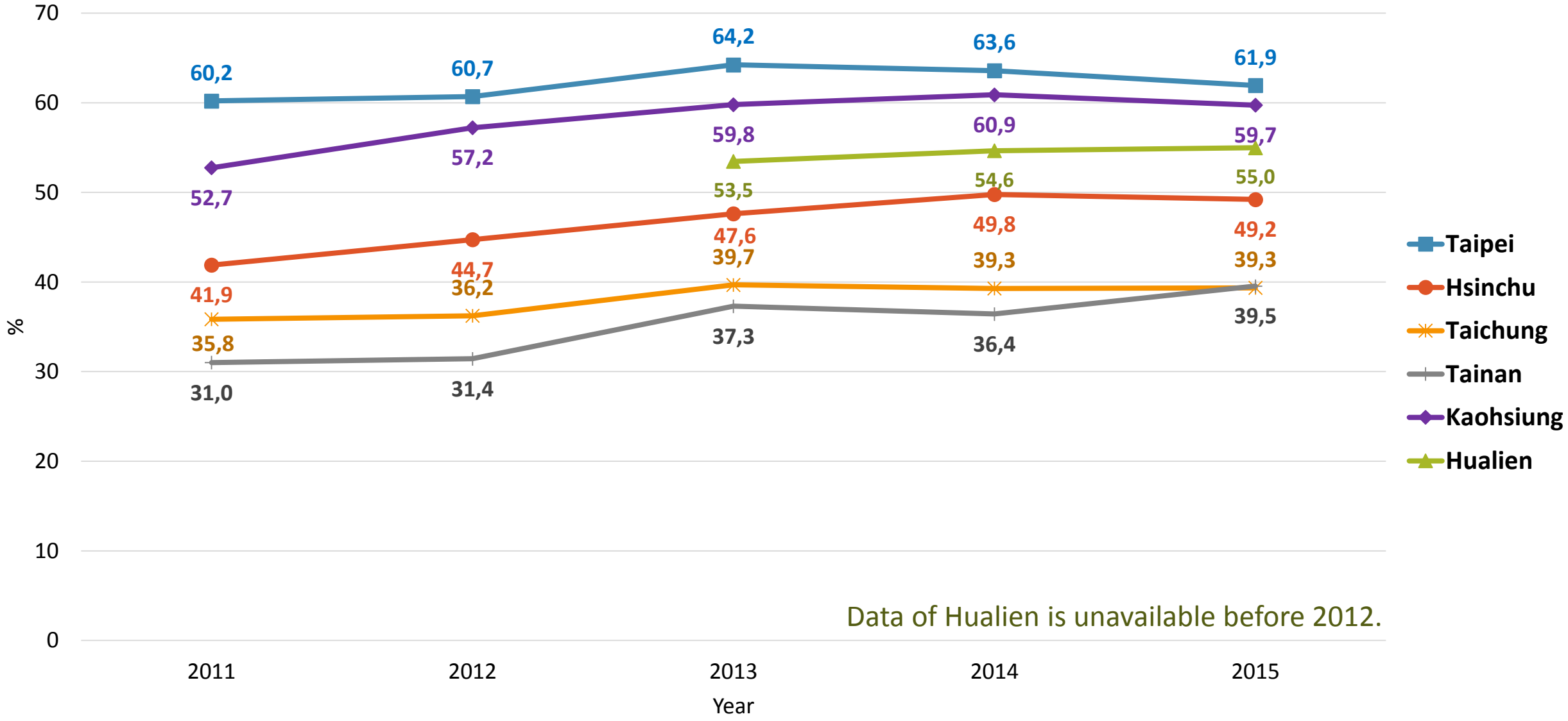




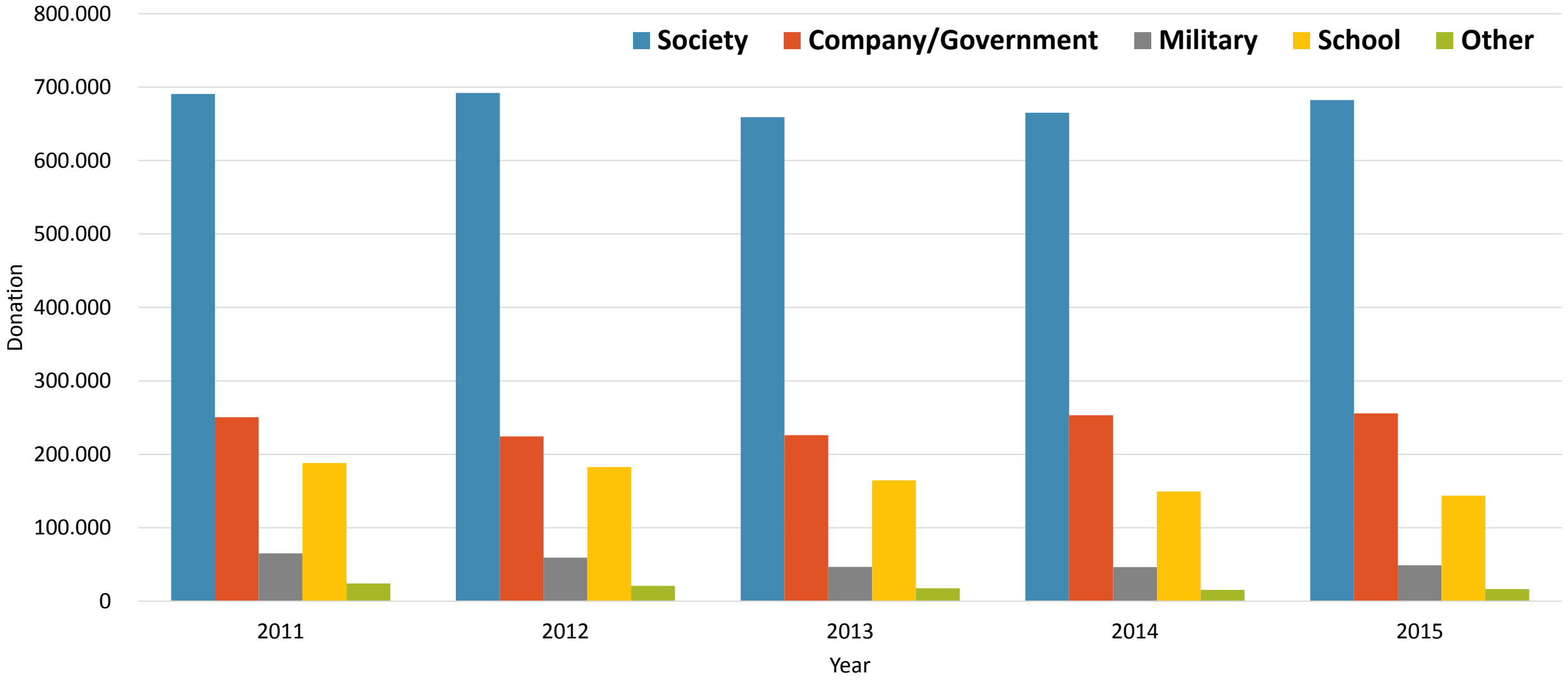
捐血站/室



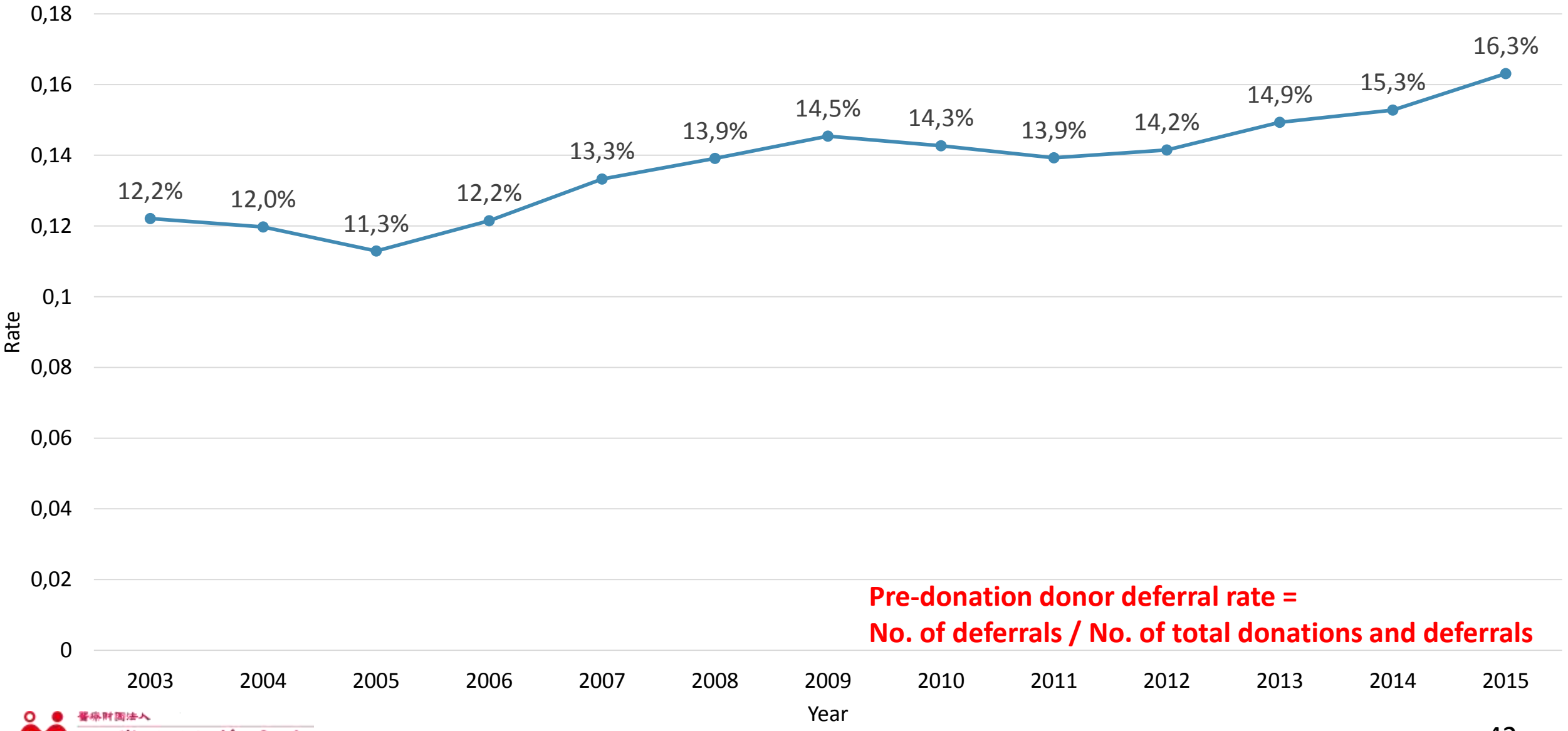
Proportion of Blood Collection in Fixed Sites, 2011-2015



Blood donation campaigns by groups, 2011-2015



Pre-Donation Donor Deferral Rate, 2003-2015

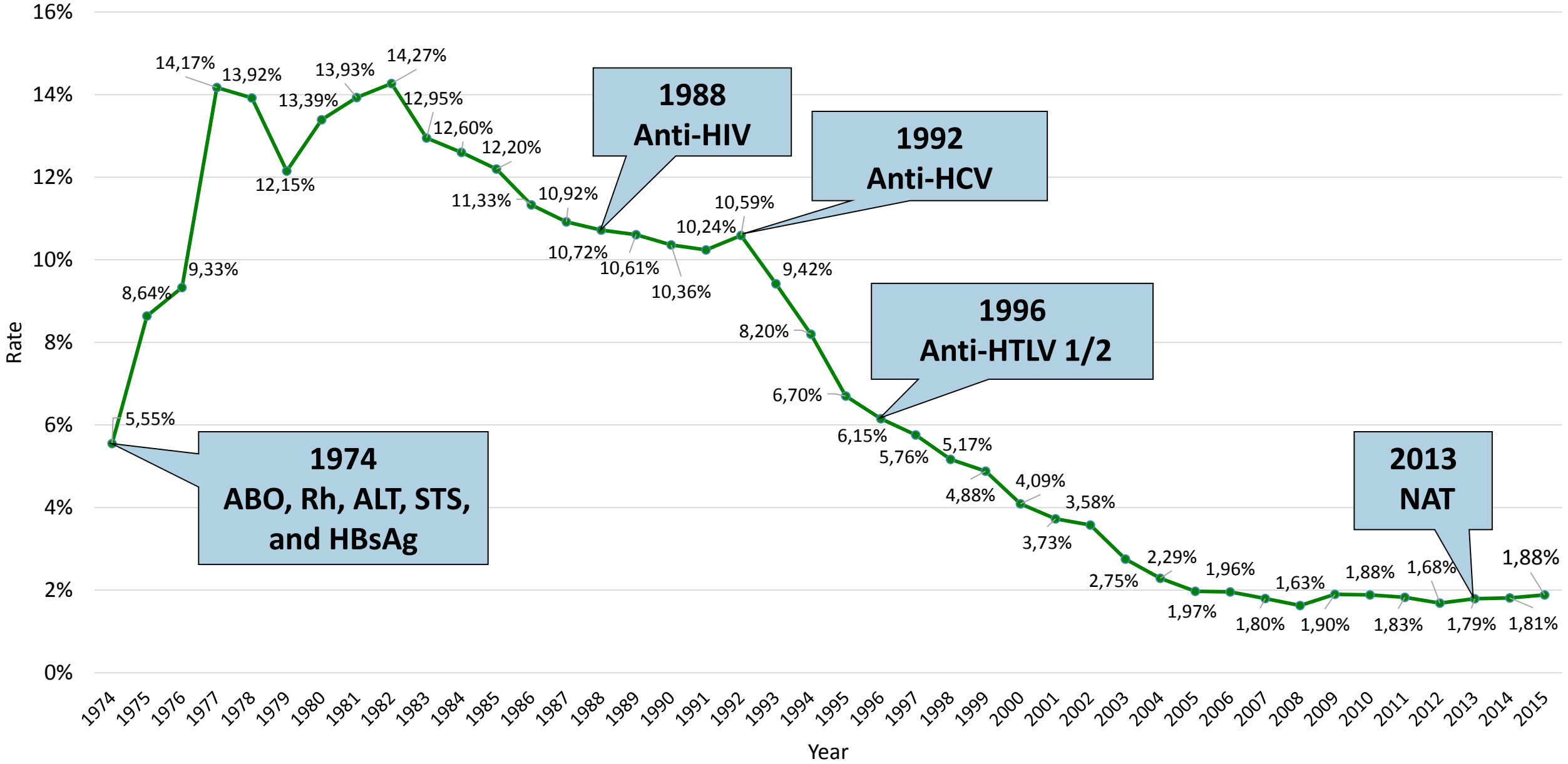


Pre-donation donor deferral rate =
No. of deferrals / No. of total donations and deferrals

Causes of Pre-Donation Deferrals, 2015

Items	Number of Deferrals	%
Low Hemoglobin	133,004	38.61%
Abnormal Blood pressure	30,350	8.81%
Aspirin or other medications	26,967	7.83%
Temporary Deferral	22,312	6.48%
Shorter Interval of Donations	16,369	4.75%
Lack of Sleeping	12,174	3.53%
Recipient of Blood or Surgery	11,651	3.38%
Under Medical Treatment	11,138	3.23%
Recent visit to TTIs epidemic country/ area	6,599	1.92%
Acupuncture, Dental Extraction	6,126	1.78%
High-Risk Sexual Behaviors	5,877	1.71%
Heart, Kidney, Lung Disease or Cancer	5,323	1.55%
Underweight	5,308	1.54%
Vaccinations	5,170	1.50%
Menstruation	5,146	1.49%
Other Abnormalities	40,984	11.90%
Total Deferrals	344,498	100.00%
Total Donations and Deferrals		2,112,379
% of Deferrals		16.31%

The Positive Rate of Post-donation Screening Test 1974 to 2015



Blood Screening Tests, 2015

Items	Donations	%
HBsAg(+)	3,025	0.17%
HBV DNA(+)	2,282	0.13%
Anti-HCV(+)	1,199	0.07%
HCV RNA(+)	413	0.02%
Anti-HIV(+)	1,447	0.08%
HIV RNA(+)	59	0.003%
Anti-HTLV-Ⅰ/Ⅱ	262	0.01%
Elevated ALT (>68 U/L)	21,163	1.20%
TPPA(+)	5,918	0.33%
Irregular Antibody(+)	4,924	0.28%
Total		1,767,881

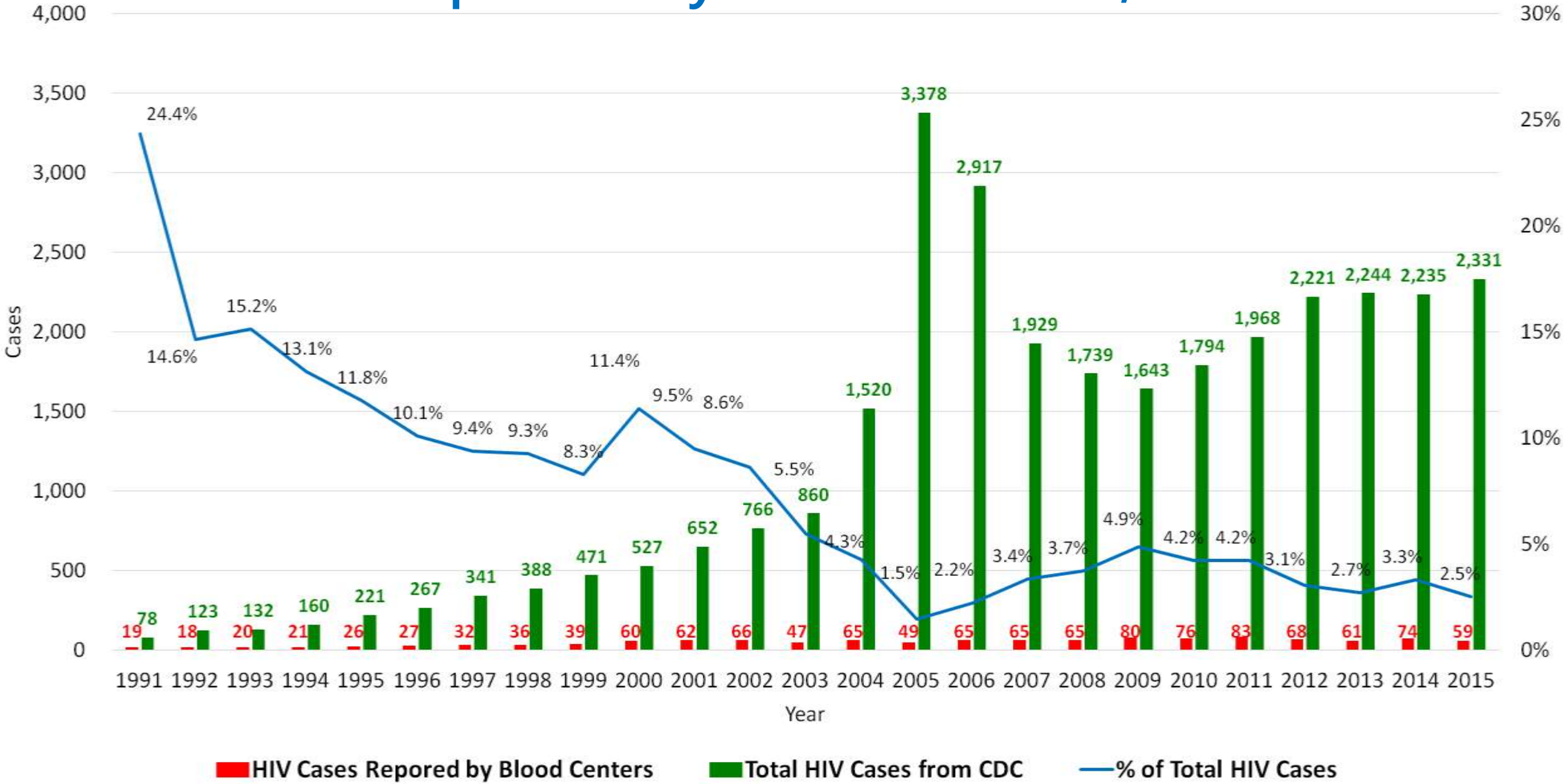
Prevalence of HIV, HBV and HCV infections in blood donors

Countries	HIV	HBV	HCV
High-income	0.002%	0.02%	0.02%
	0.0004-0.02%	0.008-0.24%	0.004-0.22%
Taiwan	0.004%	0.13%	0.02%
Middle-income	0.12%	0.64%	0.37%
Low-income	0.85%	3.59%	1.07%

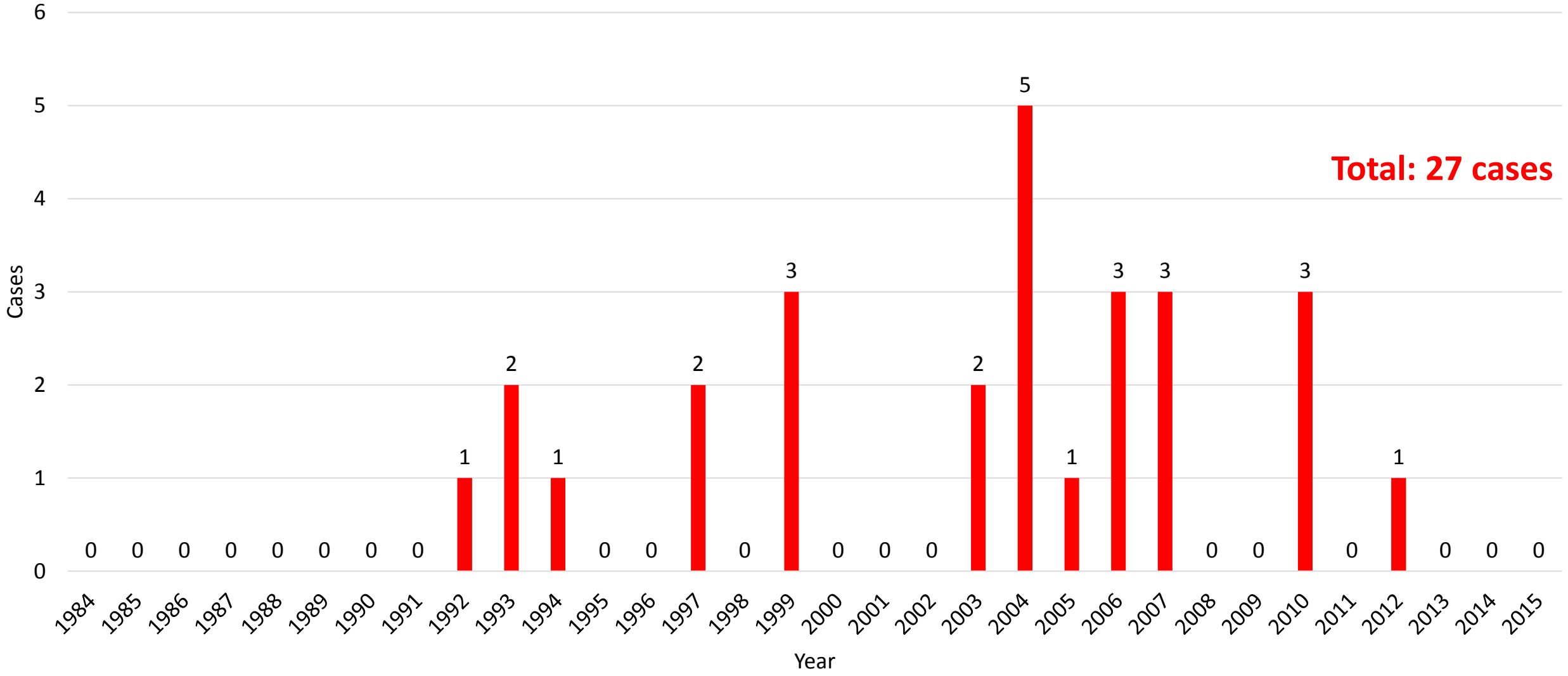
Lower prevalence of HBV/HCV infections among blood donors in Taiwan

- High prevalence of HBV and HCV infection among adults in Taiwan
- Repeat donors had no infection in their previous blood screening test
- Most first time donors are young and have the lowest risk of HBV and HCV
  - HBV vaccination for high risk group since 1983 and universal vaccination of HBV in Taiwan since 1986
  - HCV screening in donors since 1992

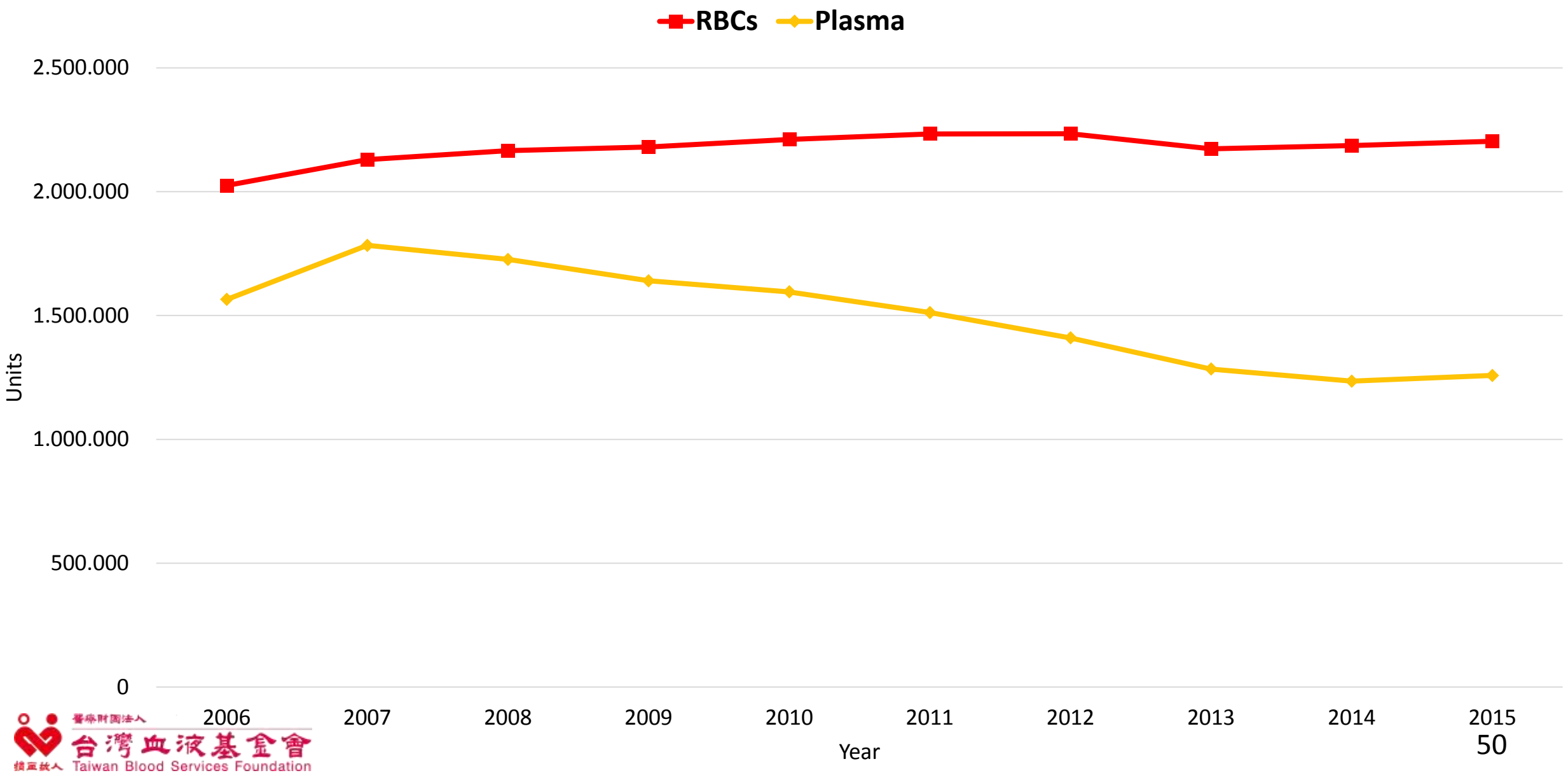
HIV Cases Reported by Blood Centers, 1991-2015



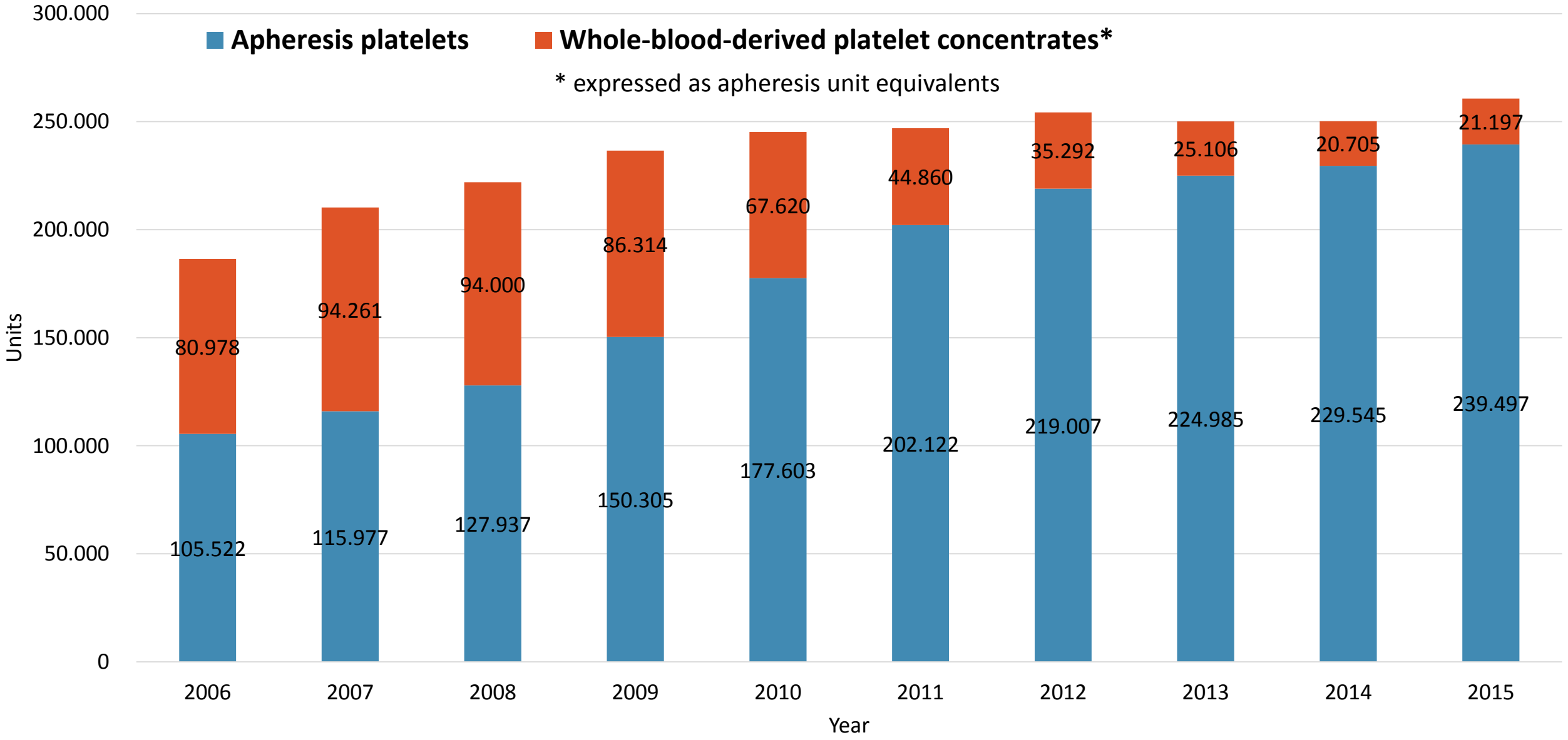
Transfusion-Transmitted HIV Cases in Taiwan, 1984-2015



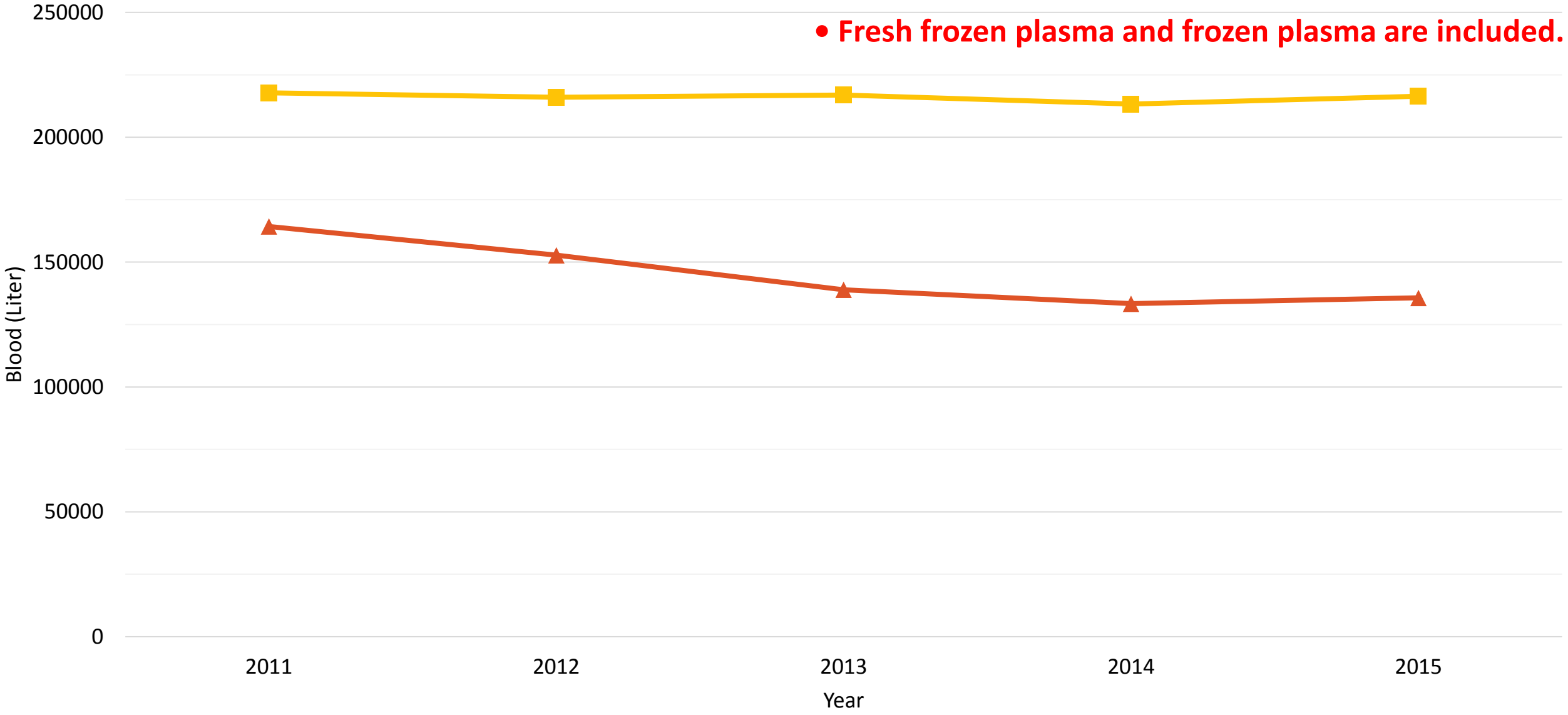
Blood Products Demand Trend , 2006-2015



Platelets Demand Trend , 2006-2015



Plasma issued, 2011-2015



- **Fresh frozen plasma and frozen plasma are included.**

Contract Fractionation of Plasma Derived Products

- Y2000-SNBTS
- Y2007-CSL
- 25-30 Ton per year
- Surplus of F8 、F9
- Humanitarian Aid (WFH)







Supply of plasma derived products

- IVIG 100% domestic need low medical need because of NHI reimbursement policy
- Albumin 10%
- Factor 8 4% NHI reimburse recombinant
- Factor 9 13% blood products

Summary

- A nationwide social campaign at the early stage is essential to the success of VNRD program in Taiwan. If you can not build up the credibility of the program and create a social mood of altruistic behavior, it will be difficult to have a good program later on.
- The VNRD program have a character of high participation rate, small volume and moderate frequency blood donation.
- Due to the rapid change of population structure, the recruitment of young blood donors and retention of the existing donors are current important issues.

- Our donors have the lowest risks of HBV/HCV/HIV infection in Taiwan, but the pre-donation deferral rate and positive rate of post-donation tests are relatively higher than those in developed countries.
- Contract fractionation with recovered plasma provide us various blood products, however, the reimbursement policy of our NHI program is a barrier to the further expansion of plasma fractionation capacity.

Thank you !