

## A 11-year retrospective analysis of deferrals and exclusions

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### Introduction

- Between 4 and 6% of the eligible adult population donates blood each year<sup>1</sup>.
- Recruiting and maintaining a pool of altruistic and healthy donors is a challenging task.
- Blood donation as a dynamic process must naturally co-exist with the arguably essential deferrals.
- Deferred donors are less likely to return<sup>2</sup>.
- Causes for deferral in a population of donors need to be assessed precisely in order to be properly dealt with.

### Aims

- To analyse a 11-year cohort of donors and blood donations and determine their respective average profiles.
- To characterise the donors population in terms of gender, age, marital status, blood type, body mass index (BMI), regularity of donation and deferral events.
- To establish the most frequent causes for deferral and their correlations to the donors population characteristics.
- To determine the tendency flow of donations per year.

### Methods

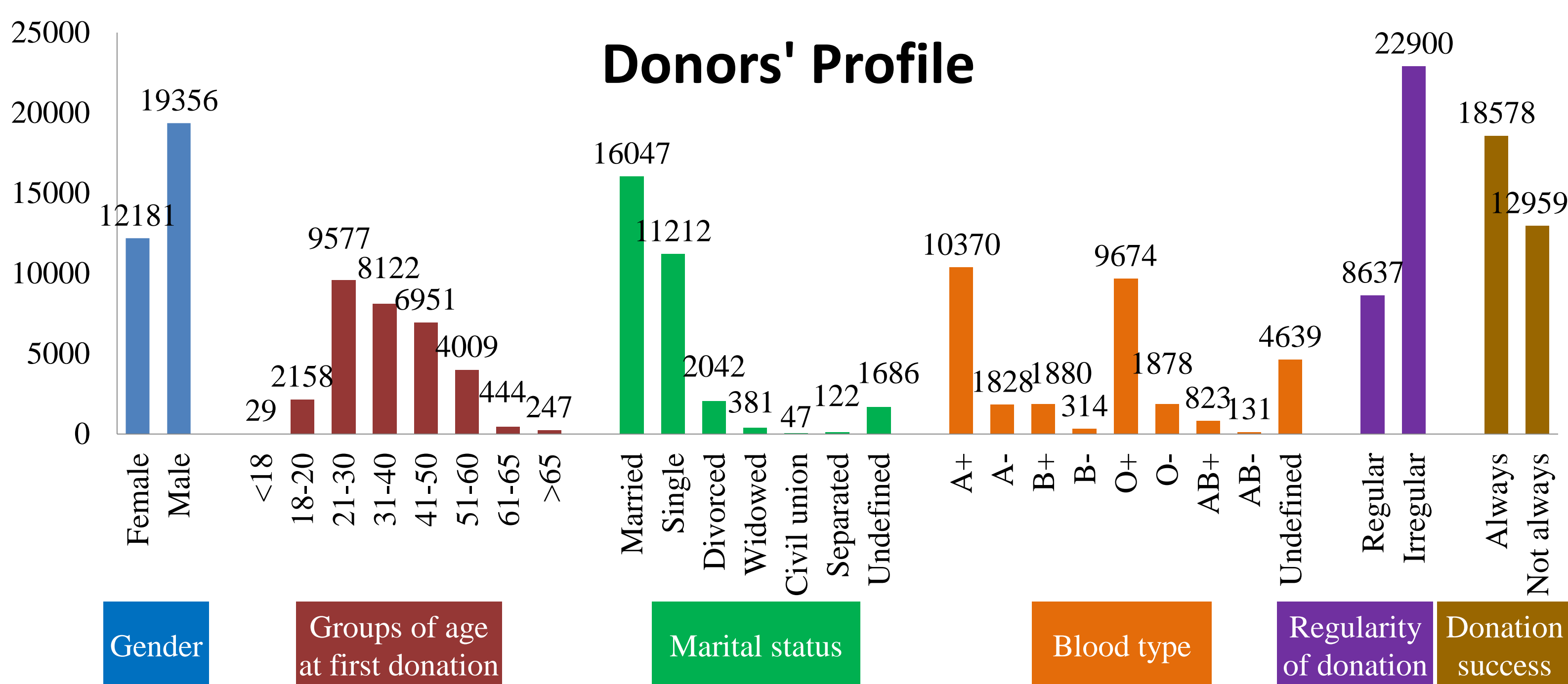
Analysis of a population of 31537 donors enlisted for 95842 blood donations in the Hospital de S. José (Lisboa, Portugal) from 2000 to 2010 (11 years).

Prior to blood donation every donor was required to fill out an informed consent form and a 21-question self-exclusion questionnaire and was submitted to a brief clinical assessment and physical evaluation including: measurement of weight, height, blood pressure, pulse and capillary hemoglobin levels.

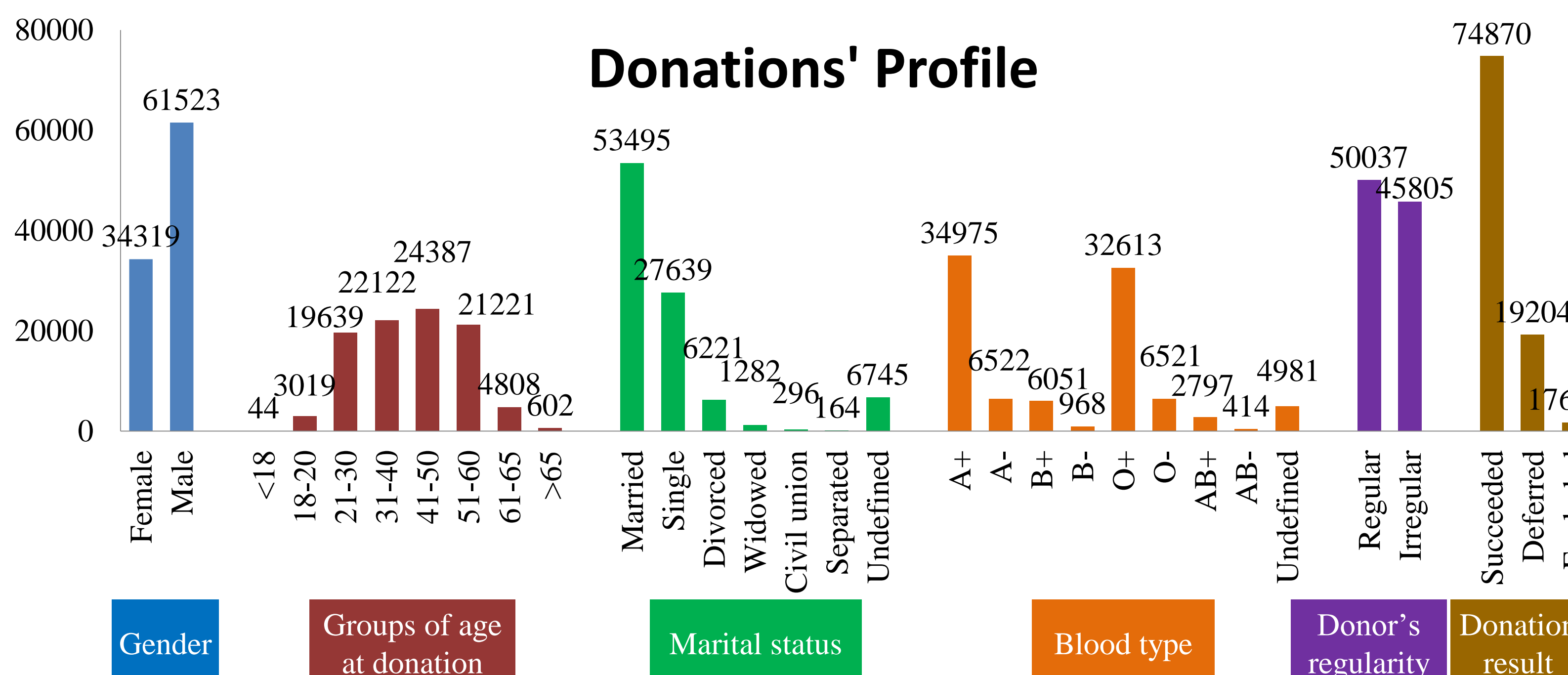
Post-donation, the collected blood was tested for ALT elevation, blood-borne viral agents (HBV, HCV, HIV 1 and 2 and HTLV 1 and 2) and other infections (*Treponema pallidum*).

Donor and donation related data was inserted to and then retrieved from the national donors application ASIS and processed into a database using Microsoft Office 2010® Excel® version 14.0.5128.5000. Statistical analysis was performed on the database with SPSS Statistics® version 16.0.0. Correlations between the donors population characteristics and the causes for deferral and Odds Ratio's were determined using logistic regression and  $\chi^2$  with a significance level of 0,05.

### Donors' Profile



### Donations' Profile



### Results

In 31537 donors the mean age was 36,6 years ( $\pm 11,9$ ) at first donation and 61,4% were male.

From 95843 donations 78,1% were successful, 20,0% deferred and 1,9% excluded.

Statistically significant correlations ( $p < 0,05$ ) with 95% confidence interval for odds ratio:

- Risk of deferral for **donation incompatible hemoglobin level**: 80,4% lower in the male sex, 1% lower for each increase in 1 year of age, 1,4-2,1x higher in an unmarried person, 4,7% lower for each increase of 1 unit in BMI, 1,7-2,9% lower for each increase of 1 mmHg in blood pressure and 0,7% higher for each increase of 1 bpm in pulse;
- Risk of deferral for **ALT elevation**: 5,2x higher in the male population, 0,9% lower for each increase of 1 year of age, 21,3% lower for regular donors, 10,8-44,5% lower in single people, divorcees and widowers compared to married people, 9,4% higher for each increase of 1 unit in BMI, 1,8-3,1% higher for each increase of 1 mmHg in blood pressure and 1,8% higher for each increase of 1 bpm in pulse;
- Risk of deferral for **positive screening test for *Treponema pallidum***: 1,9x higher in the male population, 3,5% higher for each increase of 1 year of age, 60,9% lower for regular donors and 45,9% lower in single people and 1,5x higher in divorcees compared to married people;
- Risk of deferral for **positive screening test for HBV**: 1,3x higher in the male population, 1,5% higher for each increase of 1 year of age, 45,1% lower for regular donors, 1,6x higher in B blood type and 29,7% lower in single people compared to married people;
- Risk of deferral for **donation-incompatible medication**: 39,8% lower in the male population, 39,4% lower for regular donors and 1,3x higher in single people compared to married people.

### Discussion and Conclusions

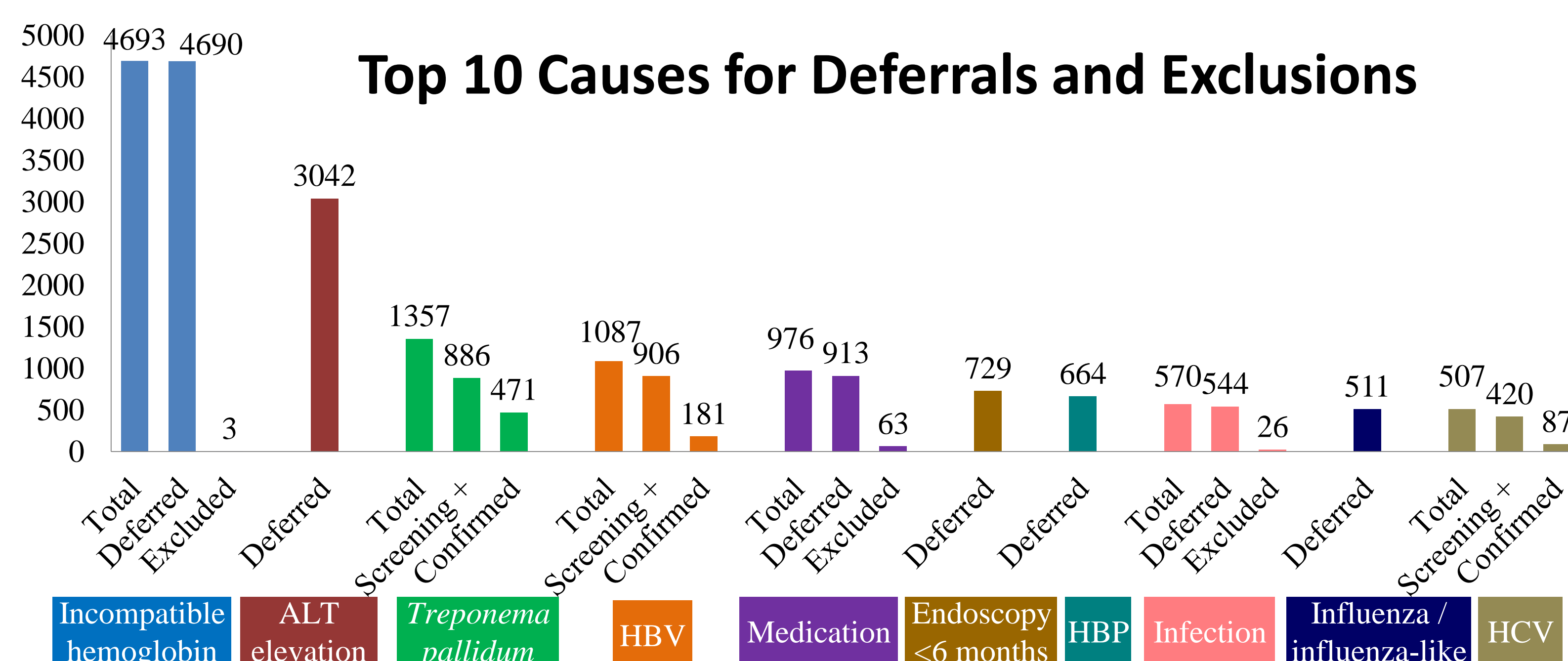
In accordance with others, donation-incompatible hemoglobin is the leading cause for deferral with a higher risk found for female donors<sup>3</sup>. Most of the donations were made by married men in the 41-50 years old group<sup>1,3</sup>.

Elevated ALT screening is the second most relevant cause for deferral. Considering that deferred donors are less likely to return and that this test has a lack of correlation with higher levels of transfusional safety<sup>4</sup>, the relevance of maintaining this test as a routine procedure for all donations should be pondered.

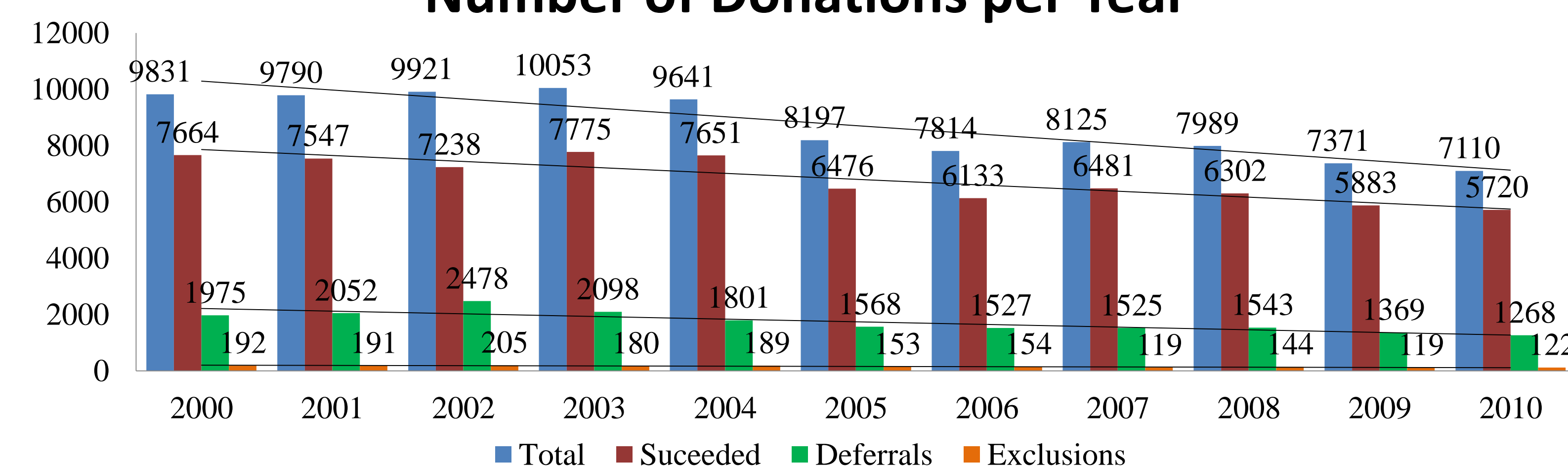
Only 27,4% of donors are regular, contributing, surprisingly, with more than half of the total number of donations. Therefore, blood collection in our Centre depends on a limited number of altruistic and healthy individuals among our population. This further stresses the need to focus our efforts not only on recruiting new donors but ultimately on motivating and catering for the regular ones.

This recommendation is all the more relevant considering the tendency of a decrease in the number of donations in the coming years.

### Top 10 Causes for Deferrals and Exclusions



### Number of Donations per Year



### References

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