



## The development of the program of voluntary blood donation promotion in students population of the University of Belgrade

### Razvoj programa promocije dobrovoljnog davanja krvi u studentskoj populaciji Univerziteta u Beogradu

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#### Abstract

**Background/Aim.** Given that in each country students represent the most progressive population group, as of 2001, the Blood Transfusion Institute of Serbia (BTIS) has been carrying the program of voluntary blood donation promotion and education of volunteers at the University of Belgrade (UB). In 2011, the BTIS intensified all activities at the UB. The aim of this study was to present activities performed from 2001 at the Blood Donors' Motivation Department (DMD) of the BTIS related with increasing the level of awareness on voluntary blood donation in the Belgrade students' population, enhancing their motivation to become voluntary blood donors (VBDs), increasing the number of blood donations at faculties of the UB, and increasing the number of blood donations in the UB students population compared with the total number of blood units collected by BTIS in Belgrade, with the emphasis on the year 2013. **Methods.** Initially, the applied methodology was based on encouraging students to donate blood through discussions and preparatory lectures, followed by organized blood drives. Appropriate selection of volunteers at each faculty was crucial. Besides their recognisable identity, they had to have remarkable communication skills and ability to positively affect persons in their environment. The applied principle was based on retention of volunteers all through the final academic year, with the inclusion of new volunteers each year and 1,000 preparatory lectures on the annual basis. The activities were realized using two Facebook profiles, SMS messages and continuous notification of the public through the media. **Results.** There was an increase in the average number of students in blood drives at the faculties from 2011, when the average number of the students *per* blood drive was 39, followed by 43 in 2012 and 46 in 2013. The number of students who donated blood in 2013 increased by 21.3% compared with 2012 data. **Conclusion.** The applied concept highly contributed to generation and retention of future VBDs willing to regularly donate blood in the coming years, with a minimum risk of transmission of transfusion transmissible diseases markers.

#### Key words:

blood donors; students; altruism; motivation.

#### Apstrakt

**Uvod/Cilj.** Imajući u vidu da studenti predstavljaju najprogressivniji deo populacije u svakoj zemlji, Institut za transfuziju krvi Srbije (ITKS) od 2001. realizuje program promocije dobrovoljnog davanja krvi i edukacije volontera na fakultetima u Beogradu. Tokom 2011, ITKS je intenzivirao aktivnosti na Univerzitetu u Beogradu (UB). Cilj ovog rada bio je prikazivanje aktivnosti sprovedenih od 2001. u Odseku za motivaciju dobrovoljnih davalaca krvi, ITKS, koje se odnose na podizanje nivoa svesti o dobrovoljnom davanju krvi u populaciji studenata u Beogradu, motivisanje studenata da postanu dobrovoljni davaoci krvi, povećanje broja davanja krvi na fakultetima UB i povećanje broja davanja krvi u grupi studenata davalaca krvi u odnosu na ukupan broj jedinica krvi koje je ITKS prikupio u Beogradu, sa naglaskom na rezultate u 2013. **Metode.** Primenjena metodologija prvobitno je bila zasnovana na ohrabrivanju studenata da daju krv kroz diskusije i pripremna predavanja, posle kojih su organizovane akcije davanja krvi. Adekvatna selekcija volontera na fakultetima bila je od suštinskog značaja. Pored prepoznatljivog identiteta, trebalo je da poseduju izražene komunikacione veštine i sposobnost da pozitivno utiču na okruženje. Primenjeni princip zasnivao se na zadržavanju volontera do završetka studija, uključivanju novih volontera svake godine i 1 000 pripremnih predavanja godišnje. Aktivnosti su realizovane putem dva fejsbuk profila, SMS poruka i stalnog informisanja javnosti posredstvom medija. **Rezultati.** Povećanje prosečnog broja studenata u akcijama davanja krvi uočava se od 2011. kada je prosečan broj studenata u tim akcijama na fakultetima iznosio 39, zatim 43 u 2012. i 46 u 2013. Broj studenata koji su dali krv 2013. povećan je za 21,3 % u poređenju sa podacima iz 2012. **Zaključak.** Primenjeni program rada značajno je doprineo formiranju budućih dobrovoljnih davalaca koji će redovno davati krv tokom niza godina, a nosi mali rizik od prenošenja markera transfuzijom prenosivih bolesti.

#### Ključne reči:

krv, davaoci; studenti; altruizam; motivacija.

## Introduction

Supply of sufficient quantities of safe blood mostly depends on blood donors who donate blood on a regular basis throughout the years and who bear minimum risk of having transfusion-transmissible diseases markers<sup>1-3</sup> in particular in activities to create and keep regular the population of donors.

Since university students are considered to be the most progressive population group in each country, ever since 2001, Blood Transfusion Institute of Serbia (BTIS) has initiated realization of the program of blood donation promotion and education of volunteers in this particular field at the faculties of the University of Belgrade (UB).

Up to 2001 blood donation among the population of Belgrade students was supported by various benefits exceeding the usual small token of gratitude, occasionally affecting the autonomy of the University. Allowed absence from two to three gym classes for each blood donation was contrary to the promotion of healthy life style, including only the first year students who had mandatory sports classes in blood drives. Allowing additional exam terms to blood donors was an act of discrimination for students not eligible to donate blood due to various health conditions. A low number of blood donations regarding the number of the first year students compared with the older, senior students, as well as a small number of volunteers coming from Belgrade, encouraged initiation of some novel activities<sup>4</sup>.

The aim of this study was to present a series of activities realized since 2001 at the Blood Donors Motivation Department (DMD) of the BTIS in the domain of increasing the degree of notification regarding voluntary blood donation in the population of Belgrade students, increasing the motivation of students to become voluntary blood donors, increasing the number of blood donations in the population of Belgrade students and increasing the number of blood donations among students – blood donors in relation to the total number of blood units collected by the BTIS in the city of Belgrade, with the emphasis on the year 2013.

## Methods

The activities directed towards the development of blood donation culture in the population of Belgrade students implied intensified existing approaches to the work with the population of students initiated in 2001<sup>5-7</sup> along with the introduction of new elements of activities related with promotion and education<sup>4</sup>. The preliminary activities to implement new elements in promotion and education were realized from 2011 to 2012. The starting methodology consisted of stimulating the audience to donate blood through conversation and organization of blood drive introductory lectures, as well as the actual realization of blood drives at the faculties in Belgrade. A basic precondition for those blood drives was appropriate selection of volunteers at each faculty who, apart from recognisable identity, had to have remarkable communication skills and the ability to positively affect people<sup>6,7</sup>. The activities combined principles of retention of volunteers all through their final academic year, along with the inclu-

sion of new students each successive year. The establishment of the volunteers' network depended on the size of the faculty, i.e. the number of academic years and study groups, as well as the number of students. Well organized volunteers' network covering each study group on each academic year guarantees the successful work in the domain of blood donation<sup>4,6,7</sup>.

A somewhat lower degree of the Belgrade students' involvement in voluntary activities initiated a novel methodological approach based on conducting a poll among graduate students at high schools<sup>6</sup>. Questions listed in the interview were created by the BTIS DMD staff, as the result of experience in work with blood donors and the published results<sup>4-7</sup>. Participation in the poll was voluntary and it was carried in 12 Belgrade high schools during the 2011/2012 academic year, within the regular blood drives performed in the first and in the second semester.

The first poll was conducted in the first semester, entitled "Tell us how you felt, evaluate our work and help us improve", within which the interviewed students provided their opinion on the very act of blood donation and their motives that encouraged them to become blood donors, as well as their evaluation of the preparatory lecture and their impression regarding the actual blood drive. Multiple choice questions referred to the very act of blood donation, offering possible answers to how they felt before, during and after blood donation. In regard to their motives for becoming blood donors, the 8 most frequent answers derived from the previous experience were offered, with the possibility of marking one or more offered answers and option to add personal view. The elements of preparatory lectures given by the associates employed at the BTIS DMD which precede every blood drive at high schools, such as the level of education, was the lecture interesting and to what extent, how influential it was regarding decision to become blood donor and the actual preparation of the blood donation procedure were rated from 1 to 5. Besides, blood drives performed at schools were also rated from 1 to 5 regarding the general atmosphere and the feeling of satisfaction which depended on the mobile medical team staff. Additional questions referred to the decision to become repeated blood donors, as well as to their attitude towards blood donation that would exclude two days absence from school following each blood donation, otherwise customary at all secondary schools in Serbia<sup>4</sup>.

In the second semester, the second interview was conducted. Basically, it was an application poll for their future voluntary work at faculties<sup>4</sup>. Participants of this poll were the students whose previous polls carried in the first semester were considered valid. The questions referred to the decision to continue to donate blood in future, willingness to be blood donation promotion volunteers at the faculties, information about the faculty they intend to enrol, personal data and contacts (telephone and E-mail address).

Statistical methods were applied in polls reviewing according to the frequency determination in relation to the total number of interviewed subjects.

Continuous education of the UB students, organized by the BTIS and the Red Cross of Serbia in the form of annual

seminars taken over from the previous practice, was continued because of the remarkable results in the education of students volunteers, their readiness for peer education and organization of blood drives at the faculties<sup>6</sup>. Direct education at the faculties within the major study subjects in each academic year and all the study groups was realized by the associates employed at the BTIS DMD<sup>4,7,8</sup>. The primary intention of this form of education is the preparation for the first ever blood donation and support to the peer education realized by students volunteers<sup>4-7</sup>.

Within the promotion activities and in the course of blood donation drives at the faculties we strongly encouraged students' creativity in the preparation and realization of blood drives (presentations in the faculty halls, remarks and evaluation boards), motivation of faculty teachers, assistants and other faculty staff members to donate blood, developing distinctive uniforms to be worn during blood drive, preparation of a small token of gratitude for colleagues who donated blood – badges and origami, thank you notes and acknowledgements, creation of interesting messages and verses, providing a mascot, making pleasant atmosphere during blood drive, appropriate music and light refreshments, inclusion and engagement of deans and the members of scientific teachers' boards in the activities of promotion and organisation of blood drives and providing support of various students' organisations<sup>4,6</sup>.

The BTIS has its regularly updated web page [www.nbti.org.rs](http://www.nbti.org.rs) and two Facebook profiles *dobrovoljni davaoci krvi srbije* and *udruženje studenata dobrovoljnih davalaca krvi*. Information regarding blood drives are forwarded via SMS.

## Results

The number of realized blood drives at Belgrade faculties ranged from 54 in 2001 to 85 in 2011. The number of blood donations by the students at Belgrade faculties blood drives ranged from 1,232 in 2001 to 3,386 in 2006, after which the number gradually decreased. From 2011, increasing tendency was notable at the faculties in Belgrade, reaching 3,684 in 2013. The average number of students *per* blood drive varied from 22.8 in 2001 to 55.5 in 2006. The following gradual decrease recorded from 2006 reached the lowest value in 2010 with the average number of 34.0 students *per* blood drive. Intensified activities initiated in 2011 resulted in the increased average number of students participating in blood drives, and in 2013, that the number was 46,1. The number of students who donated blood in blood drives outside their faculties ranged from 124 in 2001 to 4,181 in 2008, followed by the decrease reaching the lowest value of 3,017 in 2011. Activities applied in the motivation for blood donation led to the increased number of this number starting from 2011. The tendency of increase continued also in 2013 when the number of students who donated blood at their faculties was by 23.1% higher than the number recorded in 2012 (Table 1).

The results of interviewed high school students poll demonstrate the following: before blood donation, 58.5% high school students felt relaxed, 30% had jitters, and 11.5% was

little scared; during blood donation, 92% felt quite well, while 8% felt anxious/uncomfortable; basic motives for donating blood for the first time ever, with the possibility of marking several offered answers, were the altruistic reasons (131 answers), feeling of social responsibility (167 responses) and the influence of the community and family tradition (165 answers), evaluation regarding the importance of the introductory lecture and proper preparation for the first blood donation was marked with 4.25; evaluation regarding new information, interesting lecture that influenced making decision to donate blood varied from 3.3 to 3.7, which was in accordance with the level of education of high school students, but also pointed to the personal maturity when making this decision; the most encouraging was the fact that even 96% of high school students wanted to donate blood again and did not consider two days off from school as a motivating factor.

Out of the total of 138 high school students interviewed in the first poll, 50 (36.2%) students, within the second poll carried in the second term of the academic 2011/2012 year, applied for volunteer work at the faculties they intended to enrol. All of them were contacted after the faculty enrollment, and, with best wishes for future studies, invited to continue the cooperation initiated at high school. Following the interview and introduction and meeting with the senior volunteers at their faculties, 10 freshmen volunteers from 8 different faculties were included into the volunteer network.

Improved cooperation of the BTIS with the Belgrade faculties resulted in new activities, such as 7 video spots directed by the students of the Drama Art Faculty, Department of Film and TV Directing, dedicated primarily to their colleagues from other faculties. As a result of the cooperation between the BTIS and the marketing agency GREY, a campaign was realized. The slogan was: 'We all do bad things sometimes, now, let's do something good! Save life, give blood!'. At the prestigious international festival Golden Hammer, the campaign won the silver medal in the category of printed material. In the past three years, a significant participation of media was noted in their assistance to announce blood drives, as well as in the follow up of activities of the BTIS and the Red Cross in regard to the promotion of voluntary blood donation. In particular, the Public National TV and Radio Broadcasting Service, Radio TV Serbia, showed a significant level of social responsibility having started to broadcast a telop announcing the daily plans of BTIS mobile teams, i.e. specially designed audio and visibly recognisable graphics before the prime time news, providing frequent live appearances and interviews, videos covering stories from blood drives presented in the most popular TV shows and news broadcasts, and broadcasting of promotion videos. The same support has also been provided by the RTV Studio B, the most popular Belgrade public service, as well as all other national, cable and local televisions all over Serbia. More intensified cooperation has been established with the national news agencies Tanjug, Beta, as well as with numerous print media, daily and weekly papers. In mobile teams in Belgrade as well as in the BTIS, in 2013 blood was donated by 7,685 students,

21.3% more than in the same period in 2012 (Table 1). The participation of students in the total number of blood donations in Belgrade ranged from 3.2% in 2001 to the highest level of 16% in 2008 after which the number gradually fell (Table 1). In 2013 the participation of students in the total number of blood donations in Belgrade was 16.3%, or 2.2% more than in the previous year (Table 1).

the basis of the number of blood donations<sup>11, 12</sup>. Persons who make decision to continue to donate blood gradually create their own identity of a blood donor by remaining active and repeating to donate blood<sup>1, 11, 12</sup>. Callero and Pillivain<sup>10</sup> believe that after three to four blood donations donors overcome the psychological barrier and start to consider themselves as regular donors. The first three to four blood dona-

**Table 1**  
**Comparative survey of the results achieved in the population of students and students participation in the total number of blood donations in Belgrade from 2001 to 2013**

Year	No. of blood drives at faculties	No. of blood donations by students at faculties	Average no. of voluntary students in blood drives at faculties	No. of blood donations by students outside faculties	Total no. of voluntary students	No. of blood donations in Belgrade	Participation of students in total no. of blood donations in Belgrade (%)
2001	54	1232	22.8	124	1356	42205	3.2
2002	61	1532	25.1	327	1859	46253	4.0
2003	62	2728	44.0	696	3424	44202	7.7
2004	62	2941	47.4	1047	3988	44247	9.0
2005	61	3151	51.7	2228	5379	43252	12.4
2006	61	3386	55.5	2120	5506	42281	13.0
2007	72	2967	41.2	4079	7046	44751	15.7
2008	68	2834	41.7	4181	7015	43940	16.0
2009	69	2576	37.3	3519	6095	42773	14.2
2010	81	2755	34.0	3138	5893	42206	14.0
2011	85	3298	38.8	3017	6315	43941	14.4
2012	76	3261	42.9	3077	6338	45063	14.1
2013	80	3684	46.1	4001	7685	47200	16.3

## Discussion

The published data show that each year 24 million patients in the USA and around three million in Great Britain are treated with blood transfusion, which is over 10% of all hospitalized patients in those two countries<sup>9</sup>.

Understanding the motives which inspire citizens to donate blood enable the staff in the blood transfusion service to help blood donors to create positive attitude towards blood donation and to encourage their determination to maintain regular blood donors<sup>9</sup>. Percentage of citizens who actively donate blood or blood components is relatively low in relation to the total population, so that blood transfusion employees depend on the small number of volunteers who provide sufficient quantities of blood required to satisfy the needs of a health care system<sup>1-2</sup>.

Reality in the BTIS as well as in many other blood transfusion services is characterised by constant efforts to maintain the balance between the needs articulated by clinicians and to provide blood and blood components supply that would satisfy the actual needs for blood<sup>9</sup>.

In order to better understand behaviour of blood donors' it is necessary to create a reliable system for analysis of the profile of blood donors', which would contribute to the understanding of the term "donor's career". Investigations show that factors affecting people's decision to donate blood for the first time can be completely different from the factors influencing all consecutive blood donations throughout the future donor's career<sup>10-12</sup>. There have been discussions dealing with the qualitative difference between the groups of donors established on

tions are necessary for making the habit of blood donation. Recent investigations show that the higher the number of blood donations the stronger the decision of persons to maintain the blood donor's status, whereas the risk of quitting the career of a blood donor considerably decreases<sup>11</sup>.

Studying behaviour and motivation of various groups of donors on the number of blood donations is the source of valuable information. Likewise, investigation of the frequency of blood donation can also be very useful in activities for motivation and preserving blood donors. A person with 20 blood donations in the course of five years requires different treatment from the person with the same number of blood units in a 20-year time interval<sup>12</sup>. A European Project dealing with blood donation entitled 'Donor Management in Europe', known in its abbreviated form as DOMAINE, defined a new classification of blood donors using, as starting points, a total number of blood donations, different forms of donors' behaviour and frequency of blood donation<sup>4</sup>. This newly defined set of definitions is based on the previous definitions founded in the European Union, however, it is more detailed and as such more convenient for the use of blood donors data base<sup>4, 9, 13</sup>.

Active donors are those who in the previous year donated blood at least once. They are divided to those who donated blood for the first time, regular donors and relapsing donors. Returning donors are those who donated blood at least two times, they donated blood only once in the previous 12 months, with the interval between that blood donation and the previous one which exceeds 24 months. Lapsing donors are

those who donated blood in the previous year, but were inactive donors within the previous 24 months. Inactive donors are persons who donated blood, but who did not donate blood in the past two years<sup>4,10,13</sup>.

The use of up to date principles contributed to the improvement in the work of the BTIS staff with the students' population. The stated data point to the fact that the blood donation culture in the students' population is on a rather high level and that blood donation is not only related with their faculties as blood donation sites. Students voluntarily donated blood in organized blood drives at their faculties, in students' dorms, but also in bloodmobile located at the Republic Square, another bloodmobile and blood drives in local communities on various locations in Belgrade, as well as in the BTIS and their places of residence during holidays. A lower response of high school students to polls carried near the end of the final school year can be explained by their focus on filling the donors' questionnaire before the act of blood donation and the excitement during and after the actual blood donation procedure, when their priority was exchange of experience and the lack of concentration needed to fill in the poll questions. That is why the number of valid polls were smaller than the number of applied students.

Analysis of the achieved results in the population of students from 2001 till nowadays points to several significant facts. The increased number of blood drives at faculties and the existing resources show that the optimal number during the year should be 75 to 80, as was the case in 2013. It should be pointed to the fact that the implementation of the Bologna Declaration for the European Higher Education at the faculties in Belgrade considerably increased the time needed for attending the classes and reduced breaks, thus providing shorter intervals for blood donation at faculties, resulting in a lower response of students in one period. The number of blood donations in organized blood drives at faculties from 2007 to 2011 was below 3,000 per year. As of 2011, intensified activities led to the increase of the number of blood donations in the same circumstances. In the organized blood drives in 2013, even 3,684 students donated blood, which has been the highest recorded number from 2001, and by 8.8% higher than with the highest number achieved and recorded in 2006. The activities applied in 2011 also influenced the increase of the number of blood donations by students outside their faculties. The number of those donations ranged from 124 in 2001 to 4181 in 2008. A significant increase recorded in 2007 and 2008 was the result of the campaign "Make yourself and others a beautiful day, give blood!" realized during the summer of 2007 with the RTV B92. This campaign contributed to the general trend of the blood donation number increase, also within the population of students outside their own faculties. The activities applied from 2011 contributed to the increase of the number of blood donations by students in Belgrade outside their own faculties in 2013 in the total amount of 4,001, i.e. 30.0% more than in 2012. Considering the presented results, the intensive growing tendency is obvious, and in 2013, a total of 7,685 blood donations in the population of students was recorded, thus making that year the most successful one from 2001. A total of 7,685 blood donations in the population of students in 2013 makes up for 16.3% of 47,200 blood donations in Belgrade in that year (Table 1).

The population of healthy, active and receptive student is an enormous potential corpus of blood donors who meet safe blood requirements. However, there is a paucity of studies on awareness and attitude of health science students on voluntary blood donation. A paper by Sabu et al.<sup>14</sup> deals with the knowledge, attitude and practice on blood giving among students of health science in the University Campus in South India. The objective of this study was to determine the knowledge and attitude towards blood donation of health science students. The highest knowledge level was found among allied health science students (53.1%) and the lowest among pharmacy students (20.7%). This study elicits the importance of adopting effective measures in the University Campuses to motivate students for voluntary blood donation.

Blood donation in the Kingdom of Saudi Arabia remains largely involuntary (50–60%), where relatives, colleagues, and friends of patients provide a considerable portion of required donations, while the rest is donated voluntarily<sup>15</sup>. There is an urgent need to move towards an entirely voluntary donor system. This was an observational study based on a cross-sectional design of different colleges in the King Saud University (KSU). Students were recruited at random from 6 colleges: Medicine, Dentistry, Applied Medical Sciences (Science), Engineering, and Arts. This selection was based on the assumption of presumed medical and scientific knowledge of students. The total number from each college was 600 students: 300 donors and 300 non-donors. The two questionnaires were prepared: one for donors and another one for non-donors. The first part of the questionnaires was related to the general knowledge about blood and blood donation. The second part was related to the factors that encouraged donors to donate blood and non-donors not to donate. The third part concerned incentives provided in return for donating blood and whether it would encourage non-donors to donate and donors to continue donating. The study findings highlight the importance of investing awareness and motivational campaigns in university students and youth in general that aim to correct misconceptions about blood donation and address issues that will increase donor flow. In particular, the provision of tokens or gifts and allowing donor teams to operate in proximity to workplaces and residences should be addressed. The overwhelming positive attitude exhibited by both donors and non-donors is a source of optimism, indicating that the move by blood banks towards a donor system that depends wholly on voluntary, non-remunerated donors is attainable. Finally, establishing a good communication system is significant for developing long-lasting relationships with blood donors<sup>16</sup>.

Altruism is mentioned as the most frequent motive for blood donation in all subjects. Some studies show that altruistic motivation can have varying importance in a donor's career, especially in young donors<sup>8,9</sup>.

## Conclusion

Better understanding of blood donors' behaviour enables direction of activities towards the retention of donors', and taking steps for encouraging new donors. The activities performed in the Blood Transfusion Institute of Serbia in order to increase the level of information availability to the

students, education of the population students' on voluntary blood donation and increasing their motivation to become blood donors, resulted in the increased number of blood donations in the population of the Belgrade University students, as well as to the increase of the number of blood donations by the students regarding the total number of blood donations given by all the other citizens of Belgrade in 2013. The applied concept of work will highly contribute to the creation of future generations of blood donors guided by the students, future leaders in all the

significant aspects of social life. The acquired experience will be applied in the next period along with the continuous follow-up of the designed and realized results of work.

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