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Demographics of Successful, Unsuccessful and Deferral Visits at Six Blood Centers over a Four-Year Period

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Abstract

Background—Contemporary descriptions of blood donor demographics are of value in formulating recruitment and retention strategies that help assure an adequate blood supply. The demographics of successful (SV), unsuccessful (UV), meaning a non-useable unit, and deferred (DV) donor visits over a 4-year period were investigated using Retrovirus Epidemiology Donor Study (REDS)-II databases.

Methods—Data came from six US blood centers participating in REDS-II. This analysis focused on demographic factors recorded for each SV, UV, and DV. Fourteen deferral categories were created that included Low Hct/Hgb; Feeling Unwell; Malaria Travel; Malaria Other; Couldn't Wait; BP/Pulse; Medical Diagnosis; Medication; Test Results; Higher Risk Behavior; vCJD; CJD; Needle Exposure/Tattoo and Other. Rates per 10,000 donor presentations were determined for each category globally and for six sub-categorizations (first time or repeat donor status, gender, race/ethnicity, age, education, and fixed or mobile donation location). Deferral rates were also calculated on simultaneous stratifications of donor status, gender, and race/ethnicity.

Results—Out of 5,607,922 donor presentations there were 4,553,145 SV (81.2%), 302,828 UV (5.4%) and 751,381 DV (13.4%). Overall rates of deferral ranged from 0.6 per 10,000 presentations for CJD/Human Growth Hormone/Dura Mater exposure to 777 per 10,000 presentations for Low Hct/Hgb. Deferral rates were remarkably different by first time or repeat donor status, gender, race/ethnicity, and by other demographics. The highest overall deferral rate was 3953 per 10,000 presentations, or nearly 40% in first time, female, Asian donors and the lowest rate was 5.6% in repeat, male, White donors.

Conclusion—Successful donation visits according to demographic characteristics need to be placed within the context of donation attempts that are unsuccessful and donors who are deferred. The deferral rates indicate that the burden of donor deferral is high. Efforts to expand the diversity of the donor base through recruitment of minority donors may bring additional challenges because certain deferral reasons were proportionally much higher in these groups.

Introduction

While it has been estimated that 37% of the US population is eligible to donate blood, only 5% provide the approximately 16 million units available for transfusion each year.^{1,2} Although current supplies seem adequate to meet demand, transfusion needs are expected to increase substantially as the US baby boomer population begins to age and current donors become ineligible to donate.^{3,4}

Contemporary descriptions of the donor demographics of donation visits are of value in formulating recruitment and retention strategies to assure an adequate blood supply. These data also identify the demographics of those not currently engaged, or engaged to a lesser degree, in community blood donation programs and provide direction for recruitment campaigns. In a recent report using the Retrovirus Epidemiology Donor Study (REDS)-II donation database, Murphy et al⁵ noted a potential demographic shift in the donor population, with minority donors being substantially younger than white donors. Black and Hispanic donors were more likely female, and Asian donors were more likely male. In this same study, repeat donors were more likely to be over 40 years of age, male and have greater than a high school education.

Donors who are eligible to donate, but for a variety reasons, such as unsuccessful needle-stick, an adverse vasovagal reaction during donation, blood flow too slow to complete the collection in a defined timeframe, blood flow ceases, or a collection volume that exceeds the allowed container amount, do not provide blood that can be used and represent a second group of the presenting donor population. Generally, these miscollection events or unsuccessful visits (UV) would be expected to be randomly distributed unless there are specific predisposing demographic factors or blood center phlebotomy procedures that might be associated with the risk of unsuccessful collection.

Donors who are deferred before or after donation (in the case of a positive test result), represent a third group. Demographics of a deferral visit (DV) identify those who attempted to donate, or did donate and the reason for their deferral. In a previous study from one blood center, 13.6% of all presenting donors in a one-year period were deferred, and approximately 89% of these deferrals were temporary.⁶

We know of no large studies that have quantified the demographic characteristics of deferred donors by deferral category. Understanding the demographics of individuals who attempted donation may identify areas where blood collection establishments can improve pre-donation education in order to minimize the presentation of individuals at a blood drive who are unable to donate. Understanding these demographics may also improve strategies to encourage deferred donor return and serve as a basis for targeted recruitment following deferral expiration by explaining more clearly the temporary nature of a particular deferral. In this analysis we investigated the demographic characteristics of successful, unsuccessful, and deferred donor visits over a 4-year time period using the REDS-II databases.

Materials and Methods

Data Sources

Data came from six blood centers participating in REDS-II. These centers represent geographically and demographically diverse areas in the US and include Blood Centers of the Pacific, San Francisco, CA; BloodCenter of Wisconsin, Milwaukee, WI; Hoxworth Blood Center, University of Cincinnati, Cincinnati, OH; Institute for Transfusion Medicine, Pittsburgh, PA; American Red Cross, New England Region, Dedham, MA; and the American Red Cross, Southern Region, Atlanta, GA. The REDS-II centers collectively account for over 8% of annual blood collections in the United States.²

The REDS-II blood centers provided information on all donation and deferral visits to the coordinating center (Westat, Rockville, MD) for compilation into the REDS-II Donation and Deferral Databases. As part of the quality control process, monthly data files were sent to the coordinating center and reviewed for discrepancies. Data were collected from January 2006 through December 2009. Data collection was approved by all of the blood centers' and the coordinating center's Institutional Review Boards. Demographic characteristics were collected on each blood donor. Three of the REDS-II blood centers (Blood Centers of the Pacific, Hoxworth Blood Center, and Institute for Transfusion Medicine) collected additional research demographic information by integrating these questions into the self-reported health history questions routinely asked to all blood donors. At the two American Red Cross blood centers and at the BloodCenter of Wisconsin, the same research questions were administered to the donors via a supplemental paper questionnaire that was completed by the donors before or during the health history interview. Only donors who returned the supplemental questionnaire are included in this analysis. However, inclusion of donor data was not dependent on donors completing all of the questions on the supplemental questionnaire. Depending on each blood center's standard operating procedures, donors who were deferred may or may not have provided complete demographic information before the

deferral. For that reason, the category of missing for specific demographic characteristics may be large and is included in the results. At all centers, donors were asked to complete the additional research questions at each donation therefore increasing the likelihood that repeat donors would have more complete responses compared to first time donors.

This analysis focused on the demographic and donation factors associated with each SV, UV, and DV. These factors included: Donor Status (first time; repeat), Gender; Race/Ethnicity (White, non-Hispanic; Asian; Hispanic; Black, Non-Hispanic; Other, Non-Hispanic); Age (≤ 22 yrs; $23 < 29$ yrs; $30 < 39$ yrs; $40 < 49$ yrs; $50 < 59$ yrs; ≥ 60 yrs), Highest education level (up to High School graduate or GED; Some college or an Associate's degree; Bachelor's degree or higher) for persons 23 years of age or older; and Donation Site (fixed; mobile). Highest education level was determined for persons 23 years of age or older based on the premise that persons younger than this age could currently be in school. Among all of the reasons for deferral, 14 broad categories were constructed including: Low Hct/Hgb; Feeling Unwell; Malaria Travel; Malaria Other; Couldn't Wait; BP/Pulse; Medical Diagnosis; Medication; Test Results for infectious markers; Higher Risk Behavior; vCJD; CJD; Needle Exposure/Tattoo and Other. Several of these categories include deferrals that represent similar exposures or risks. For example, Feeling Unwell includes having a cold, elevated temperature or other signs of potential infection. The Other category is a catch-all for deferrals that could not be grouped into one of the previous categories, and includes unable to locate vein for phlebotomy, irregular collection volume, and at one REDS-II center a non-specific 1-day deferral category. Therefore, each of the REDS-II centers may not have the same deferrals represented in this category.

Rates for each of the 14 categories of deferral were calculated as the proportion of deferrals out of the combined denominator of all successful and unsuccessful allogeneic donation and deferral visits according to demographic characteristics, and expressed per 10,000 donor presentations. The study is a descriptive analysis of the proportions of unsuccessful donation and deferral using all of the data from each of the six REDS-II centers for a four-year period. Statistical comparisons of proportions and p-values were not calculated. The size of the database used ensures that nearly any difference observed between categories of deferral or within levels of demographic factors would be expected to be statistically significant. Conventional analysis (considering the data to be a sample from a population) would not properly account for year-to-year variation in future time periods, nor account for demographic/behavioral trends of donors over time. While we purport other blood centers will see similar patterns, we do not assert such patterns will be statistically equivalent.

In order to further investigate how multiple demographic characteristics may be related to donor visits and deferral we conducted stratified analyses. First, we compared the proportion of UV between first time and repeat, White and Black donors > 23 years of age to see if there were large differences in UV for these groups. Second we calculated rates of deferral within strata of the presenting donor population simultaneously defined by first time or repeat donor status, gender, and race/ethnicity: Each of the three factors represents an important donor or demographic characteristic that is independently associated with different categories of deferral and so we thought the results obtained from the 3-way stratification had the potential to provide new insights into donor deferral. These analyses were necessarily restricted to presenting donors for which we had complete information on the three characteristics. Deferral for risk of CJD/Human Growth Hormone/Dura Mater Exposure was included in the overall analysis, but was not included in subsequent stratified analyses due to the small number of deferrals in this category.. Analyses were conducted using SAS/STAT version 9.1.2 (SAS Institute Inc., Cary, NC) and Excel version 2010 (Microsoft Inc., Redmond, WA).

Results

Over the four years, out of 5,607,922 donor presentations there were 4,552,197 SV (81.2%), 306,175 UV (5.4%) and 749,550 DV (13.4%). Among the deferred visits, 716,834 visits (95.6%) were deferred for temporary reasons and 32,664 visits (4.4%) were deferred for permanent reasons. The demographic characteristics of donors with SV, UV and DV are provided (Table 1). UVs were over-represented in first time donors, Black donors, and Donor ≤ 22 years of age. DV were over-represented in first time donors, female donors, all race/ethnicity categories other than white, and in younger donors. When we examined UV in more detail we found that the proportion of UV in black first time donors >23 years of age (1,213 per 10,000 visits) was much higher than in white donors (657 per 10,000). Similar results were found comparing repeat black (902 per 10,000 visits) and white (445 per 10,000) donors. Two-fold differences in the proportions of UV are clearly clinically relevant differences, and would also be certainly be statistically significant different owing to the large number of observations in the REDS-II database.

The overall rates of deferral varied from a low of 0.6 per 10,000 presentations for CJD/ Human Growth Hormone/Dura Mater exposure to a high of 777 per 10,000 presentations for Low Hct/Hgb (Table 2). At this bivariate level of analysis, many of the previously observed factors associated with specific deferral were observed. For each of the 13 deferral categories (excludes the CJD category) the rates of deferral show notable differences according to the six demographic classification characteristics. For most deferral categories, first time donors had much higher deferral rates than repeat donors. There was one notable exception to this pattern; the rate of Low Hct/Hgb deferral was slightly higher in repeat donors. For Low Hct/Hgb, the rate of deferral for women was 10-fold higher than that of men, and Black or Hispanic donors had higher rates than other race/ethnicity groups. For the other demographic or donation factors we examined, Low Hct/Hgb deferral rates were generally similar. The highest rates of deferral for either travel to a malaria endemic area or for other malaria deferrals were evident in Asian donors. One of the most striking results at this level of analysis was deferral for positive test results in Asian donors, which was 155 per 10,000 presentations.

The 3-way stratified deferral rates that included first time or repeat donor status, gender and race/ethnicity provide additional insight into the burden of deferral. Overall the burden of donor deferral is high with strong evidence that different categories of deferral are more likely to affect different groups. Higher rates for all deferrals combined are apparent in first time female donors regardless of race followed by repeat female donors (Figure 1A). The highest rate for all deferrals combined is 3953 per 10,000 presentations or nearly 40% in first time, female, Asian donors and the lowest rate is 5.6% in repeat, male, White donors, indicating a 7-fold difference in the chances of deferral between these two groups of donors. The higher rate of Low Hct/Hgb deferral seen in repeat female donors is evident in every race/ethnicity group (Figure 1B).

The stratified deferral rate graphs indicate that Asian donors appear to be disproportionately affected by donor deferral and receive many types of deferral in excess of other groups (Figures 1- C, D, E, F and H). Particularly notable, elevated deferral rates in Asian male and female donors are found for malaria-related reasons, test results, and the combined category of "Other" in female Asian donors. Even for the category of couldn't wait/changed mind, Asian donors have some of the highest deferral rates. For test results deferral, over 85% of all disease marker positive donations in Asian donors were for markers of hepatitis B virus infection.

For each individual category of deferral, a specific group can be identified as having the highest rate of deferral. The group with the highest rate of deferral varies. For example, the rate for blood pressure or pulse deferral is highest for repeat, male, Black donors whereas the rate of deferral for feeling unwell/cold/infection or elevated temperature is found in first time, female, White donors.

Discussion

Eighty-one percent of all donation visits resulted in a successful donation, a number similar to that reported in a previous study.⁶ The distribution of these successful visits according to demographic variables noted for these 4.5 million successful donations is similar to those reported in previous studies.⁷⁻⁹ For example, a number of studies reported as part of REDS considered the demographics of blood donors.^{7,8,10} The five REDS blood centers were: the American Red Cross (ARC) Greater Chesapeake and Potomac (Baltimore, MD, and Washington, DC), Southeastern Michigan (Detroit), and Southern California (Los Angeles) Regions; Blood Centers of the Pacific in San Francisco; and Oklahoma Blood Institute in Oklahoma City. Gender distribution seen in our study was identical to results published from REDS and approximately 70% of donors in both studies had some college/technical school or higher level of education.⁷ The REDS-II donation database demonstrated a slightly higher percentage of White, non-Hispanic donors when compared to the REDS database, 89 and 81%, respectively.⁷ Concomitantly, there were slightly more minority donors in the REDS data, reflective of the different demographic characteristics of the populations from the participating blood centers in REDS and REDS-II.

In our study, approximately 46% of all successful donations were made by individuals 41-60 years of age. This finding is consistent with data reported by Zou and coworkers where 47% of blood donors were between the ages of 41-60 years.¹¹ However, in the REDS study, donors ≥ 45 years of age accounted for only 17% to 31% of donors depending on the center.⁷ Other studies have noted a higher proportion of donors in the 30 to 40 year old age range.^{6,12} The previous studies used databases from a number of years ago. Therefore the REDS-II data may more accurately indicate the current age of the US donor population, and the need to better engage younger donors. As noted in the Progress Review from Healthy People 2010, persons aged 25 years or older who had at least some college gave blood at a rate of 7.9 percent, compared with a rate of 1.8 percent of those who had not completed high school¹³ and so the issue of enhancing donation in younger ages appears to be related to both age cohort effects and educational attainment.

Apparent underrepresentation of minorities as blood donors when compared to White-Non Hispanic donors is also a finding consistent with other studies.^{5,12,13} While two of the six centers achieved a higher proportion of minority donors (data not shown), the remaining four centers had very small percentages of minority donors.¹³ Murphy and coworkers have previously reported on the representation of race/ethnicity groups at the REDS-II centers compared to the census data from the same communities and found that minorities donors were under-represented as donors and less likely to be repeat donors, but first time donor representation was increasing.⁵ In a recent paper by Shaz and colleagues, donor rates in the Atlanta metropolitan area were 11/1000 population for Whites, 6/1000 for Blacks and 3/1000 population for Hispanics. Census data for the US continues to demonstrate substantial increases in the proportion of the population defined as minorities, yet these individuals continue to be underrepresented in the blood donor pool.⁴ For example, Black and Hispanic populations in the Atlanta area increased by 22% and 21%, respectively, between 2004 and 2007. The American Red Cross, Southern Region in Atlanta recognizes the changing demographics of their population-base and has developed programs to recruit

Black donors now and in the future, with planned expansion to recruit Hispanic donors (personal communication, Mario Sedlock).

The results for unsuccessful donation visits also highlight an additional insight. Out of all donor presentations, nearly 11% of Black donors had unsuccessful visits. If deferrals were excluded from the analysis and only eligible visits considered, the proportion of unsuccessful visits in Black donors would increase to nearly 14%. The reasons for the unsuccessful donation attempts are not available in the REDS-II dataset, but given lower rates of adverse reactions in Black donors^{14,15} it is likely that many unsuccessful collections are attributable to the inability to locate or palpate a vein for phlebotomy. The blood collection process is dependent on skilled phlebotomists. As Shaz and colleagues have noted, to help improve successful donation rates in racial minorities, additional phlebotomist education efforts may be necessary.¹⁶ Our study lends further support to the need to address this issue because unsuccessful visits in black donors remained disproportionately high even in repeat donors 24 years of age or older.

The vast majority of deferral visits resulted in a temporary deferral. However, it is well known that many donors treat this information as if it is a permanent deferral and are likely not to return for future blood donation.^{9,17-20} Temporarily deferred donors took the initiative to become a blood donor, something that the majority of the US population never does, and attempts to assure return are vital to the future adequacy of the blood supply. Additional post-deferral education and information provided by the blood collection agency at the time of deferral, coupled with enhanced re-recruitment efforts when the deferral has expired, may improve future donor return.

We considered several combinations of the available demographic factors for inclusion in the 3-way stratified analyses. For example, another factor known to be associated with different deferral rates is age. However, the deferral rates according to donor age are largely known and not as variable as for gender, race/ethnicity and first-time or repeat status. In addition, due to the number of strata that would have been created it was not feasible to include a fourth stratifying variable due to number of strata it would have created.

The stratified deferral rates may raise some important implications for blood collection. First, there is a very high burden of deferral in Asian donors. There are several categories where Asians have the highest proportion of deferrals. Cumulatively, these result in Asian women and men having the highest deferral rates within categories defined by first time and repeat donor status. Second, the highest deferral rates for Low Hct/Hgb were found in repeat, not first time, female donor visits within each race/ethnicity group, adding further weight to results from emerging studies suggesting that repeat donation leads to increased risk of deferral likely attributable to reduced iron stores.²¹

Each of the previous observations contributes to the need to reconsider a broader perception; the belief that white males are more willing to donate blood than any other group. The deferral data we report indicate that a very large proportion of presenting donors within specific gender and race/ethnicity groups *do* present to donate but are deferred or unsuccessful during donation. The stratified deferral rates lend further support to the need to ensure that deferral is based on scientific evidence to support the necessity for such deferrals, and also calls attention to the need to focus not only on the donors that are allowed to donate but also the persons who willingly present but are not allowed to donate. Many blood centers are concerned about the representation of the minority groups in the donor population and have active campaigns to recruit minority donors. However, it appears that deferral may contribute to a misperception regarding minorities' willingness to donate. Often social or cultural reasons are suggested as the reasons minorities do not donate. An

underappreciated factor may be the fact that blood centers simply defer larger proportions of potential donors in these groups.

This study has several limitations. The six blood centers participating in REDS-II may not be representative of all US blood centers. While these six blood centers are geographically diverse, large populations of Hispanic donors are not well-represented. While this could compromise the generalizability of the data, these contemporary results give a snapshot of who is donating and who is deferred from donating. Also, missing demographic information for key characteristics included in this analysis, such as first time or repeat status, bears further consideration. This is a source of information bias in our analysis. For that reason, the rates of deferral for first time donors that we report here may be underestimated.

The deferral data presented here are also limited when one recognizes that most centers will defer a donor based on the first reported deferrable characteristics or behavior during the health history interview. Typically the interview is then stopped and the donor is deferred. For that reason, these results are not a complete census of all deferrable characteristics or behaviors in each presenting donor. Donors who may have multiple deferrals have likely only been counted once in this analysis. This further suggests that the rates of deferral presented here are underestimates of the true rate of deferral for each individual deferral category. However the overall rate of the deferral is likely an accurate reflection of the burden of deferral in the presenting donor population.

Another limitation is that centers record unsuccessful visits in different ways. Some centers code these as deferrals and other provided information in donation records that indicates the phlebotomy was unsuccessful. For this reason, a quantity not sufficient (QNS) or inability to locate or palpate a vein for phlebotomy may be represented as either an unsuccessful visit or as a deferral visit in our analysis depending on the blood center. Such visits have not been double counted in our analysis, but unfortunately we could not use the REDS-II databases to group these same underlying reasons together across all centers. These visits are either counted as unsuccessful or as deferral visits in the “Other” category of deferral.

An additional set of factors that could influence UV are those related to the collection needles and phlebotomy procedures used at each of the centers. Unfortunately we do not have information on these parameters but recognize this could play a role in the likelihood of an UV. We are unaware of any studies that have examined UV according to factors such as needle configuration, but know that advances in phlebotomy such as the use of butterfly needles have improved the experience for donors.

Successful donation visits according to demographic characteristics need to be placed within the context of the donation attempts that are unsuccessful and the donors who are deferred. The data reported here indicate that a very large proportion of presenting donors are deferred or unsuccessful during donation. Overall, these data may help blood collection agencies focus on improved recruitment of donors, and to strategize additional ways to communicate with those who are most likely to be temporarily deferred from donation. While it is easy to state that new recruitment strategies are needed to increase minority participation in blood donation, it is far more difficult to identify and implement strategies that are effective and that will assure donation rates that better reflect actual population demographics. In addition, recruitment of minority donors may bring additional challenges, as at least in our data, certain deferral reasons were proportionally much higher for specific race/ethnicity groups.

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Figure 1. Three-way stratified deferral rates by deferral category for REDS-II presenting donors 2006 – 2009*

*FT - First Time, Rpt - Repeat, F - Female, M - Male. Temp. - Temperature

Table 1
Number of presenting donors at REDS-II blood centers, 2006-2009, and outcome

	No. of Donor Presentations	Successful Donation Visits (%)	Unsuccessful [†] Donation Visits (%)	Deferral Visits (%)
Overall	5,607,922	81.2	5.4	13.4
Donor Status				
FT	613,901	70.7	9.0	20.3
Repeat	4,802,103	82.7	5.0	12.3
Missing	191,918	77.2	5.1	17.7
Gender				
Male	2,742,285	89.2	4.1	6.7
Female	2,865,525	73.6	6.7	19.7
Missing	112	28.3	5.3	66.4
Race/Ethnicity				
White	4,918,500	82.5	5.1	12.4
Asian	127,267	72.4	6.3	21.3
Black	262,411	69.4	10.9	19.7
Hispanic	185,596	74.4	6.1	19.5
Other	87,230	74.7	7.0	18.3
Missing	26,918	58.8	5.1	36.1
Age				
≤ 22 years old	1,039,871	74.1	8.6	17.3
23-29 years old	472,770	78.7	6.3	15.0
30-39 years old	718,054	81.0	5.2	13.8
40-49 years old	1,220,665	82.6	4.5	12.9
50-59 years old	1,298,913	84.9	4.4	10.7
≥ 60 years old	857,557	83.6	4.3	12.1
Missing	92	7.6	0.0	92.4
Education [*]				
≤ HS/GED	754,299	82.1	4.5	13.4
Some College or Associates Degree	1,476,529	82.1	4.9	13.0
Bachelor's Degree or Higher	2,189,330	83.6	4.7	11.7
Missing	147,893	80.6	4.4	15.0
Donation Site				
Fixed	2,175,931	82.6	4.1	13.3
Mobile	3,429,945	80.3	6.3	13.4
Missing	2,046	80.8	6.0	13.2

^{*} Education is reported for donors 23 years old and older.

[†] "Unsuccessful" donation visits include quantity not sufficient and other reasons

Rates of deferral (per 10,000 visits) at REDS-II blood centers by demographic characteristics (visits made in 2006-2009). The highest rate of deferral in each category is indicated in bold and italic type.

Table 2

	Frequency of donor presentations	Overall Rate of Deferral	Low hct/hgb	Unwell/Cold/ Infection/Temp	Malaria Travel	Malaria Other	Couldn't Wait/ Changed Mind	BP/Pulse	Med. Diagnoses & Conditions	Medication & Vaccination	Positive Test Results	High Risk Behav./ Exposure	vCJD/EU Travel/ Bovine Insulin	Needle Exposure	Other Reasons
Overall	5,607,922	1337	777	67	85	4	35	75	69	31	25	22	18	38	110
Donor Status															
First Time	613,901	2028	765	<i>125</i>	155	17	<i>86</i>	<i>117</i>	<i>130</i>	50	62	<i>90</i>	<i>57</i>	<i>137</i>	284
Repeat	4,802,102	1231	775	58	75	2	25	69	59	27	20	12	12	24	85
Gender															
Female	2,865,524	1972	<i>1392</i>	77	85	3	38	66	73	28	25	17	16	44	133
Male	2,742,285	673	134	56	86	5	32	83	66	34	24	27	20	32	86
Race/Ethnicity															
White	4,918,499	1238	735	66	75	1	29	71	70	30	19	17	15	32	93
Asian	127,267	<i>2129</i>	812	38	<i>363</i>	<i>98</i>	85	90	50	37	<i>155</i>	44	23	44	<i>339</i>
Black	262,411	1975	1273	78	48	5	44	107	56	28	40	55	36	75	156
Hispanic	185,596	1946	1077	63	157	16	72	85	48	37	40	53	23	83	228
Other	87,230	1832	933	71	111	24	60	94	63	33	72	59	42	92	213
Age															
≤ 22 years old	1,039,871	1729	868	108	98	8	58	90	67	38	18	46	17	120	223
23-29 years old	472,770	1496	843	73	140	16	41	59	51	27	21	40	22	65	117
30-39 years old	718,054	1378	822	74	106	6	37	70	49	24	27	25	31	33	91
40-49 years old	1,220,665	1289	842	58	77	1	27	75	50	19	22	14	27	15	76
50-59 years old	1,298,912	1067	646	48	69	0	25	74	68	21	24	10	9	9	75
≥ 60 years old	857,558	1213	699	48	60	0	29	69	128	<i>60</i>	39	9	5	4	84
Education*															
≤ HS/GED	754,299	1334	812	65	40	1	29	93	90	29	38	26	13	26	90
Some College or Associates Degree	1,476,529	1297	820	60	60	1	27	79	69	28	27	17	18	24	84
Bachelor's Degree or Higher	2,189,330	1167	698	52	110	5	27	58	60	28	21	11	18	13	80
Donation Site															
Fixed	2,175,931	1325	869	48	64	1	36	66	71	33	32	14	8	15	88

	Frequency of donor presentations	Overall Rate of Deferral	Low hct/hgb	Unwell/Cold/ Infection/Temp	Malaria Travel	Malaria Other	Couldn't Wait/ Changed Mind	BP/Pulse	Med. Diagnoses & Conditions	Medication & Vaccination	Positive Test Results	High Risk Behav./ Exposure	vCJD/EU Travel/ Bovine Insulin	Needle Exposure	Other Reasons
Mobile	3,429,944	1344	719	79	99	6	35	80	68	29	20	27	24	52	124

* Education is reported for donors 23 years old and older.