Targeting Repeat Blood Donors Can Increase Supply


Study Overview

**Objective.** To predict the number of additional donations that could be collected if donors could be persuaded to donate 1 more time in the next year.

**Design.** Retrospective cohort study.

**Setting and participants.** First-time donors giving between 1991 and 1994 and donors who gave in 1995. First-time donors were followed for 3 to 6 years as part of the National Heart, Lung, and Blood Institute Retrovirus Epidemiology Donor Study (NHLBI REDS), an ongoing multicenter study on U.S. blood safety issues and other supply-related concerns.

**Methods.** Demographic, screening, and confirmatory laboratory data were collected. The impact of decreasing the number of nonreturning donors in a 1-year period was projected using the Poisson distribution to model the donation patterns of 539,063 donors who gave in 1995.

**Main outcome measures.** Predicted number of repeat donors if 5%, 15%, or 25% of prior donors could be persuaded to donate once more within 1 year from their initial donation. A secondary outcome was the frequency and profiles of first-time donors returning to donate.

**Main results.** 49% of first-time donors did not return within 6 years. Among those that returned, 65% did so within 1 year and 84% within 2 years. Returning first-time donors tended to be older, U.S. born, white, and educated beyond high school. In 1995, 30% of donors were first-time, 31% had donated before, 7% were returning for the first time in 1 year, and 32% had not donated in over 1 year, yielding 1.5, 2.4, 1.9, and 1.7 donations in 1 year, respectively ($P < 0.001$). From Poisson distributions, reducing nonreturning donors by 5% could increase blood collections by 2.7% or an additional 26,952 donations per year. Similarly, 15% to 25% reductions in nonreturns could increase collections by 8.6% to 16% or a maximum of 156,329 donations per year.

**Conclusion.** Most donors are not giving near their donation limit. A substantial increase in donations could be achieved by a relatively small decrease in donor non-return.

**Commentary**

The blood supply is a limited resource. Over 13,000,000 units of blood are donated by an estimated 10,000,000 people annually—with over 40,000 units of blood needed daily across the country. Shortages are inevitable, particularly in centers with high surgical volume, communities with increased violent crime, and regions hit by natural disasters. However, impending shortages can result in remarkable changes in donation rates as seen after 11 September 2001 when there was a 5-fold increase in first-time donations over the ensuing weeks [1]. Unfortunately, first-time donors usually are 1-time donors. One-year return rates for donors who gave on or shortly after 11 September 2001 were not statistically different from return rates for first-time donors in 2000.

In this study, the same authors of the September 11th findings wanted to examine first-time donation rates between 1991 and 1994 and predict the impact on the blood supply (in 1995) if return rates hypothetically could be increased. The study used a large database of donors from blood centers across 5 regions of the country, which accounts for 8% of the U.S. blood supply.

Donor screening and registration is a formal process with standardized data collection, recording, and storage. As the authors acknowledge, repeat donors may have gone to different sites and were misclassified as “new.” Unless participants otherwise changed demographic information or errors in data capture were made, it seems unlikely that repeat donors would have been misclassified.

The authors point out that they made a few assumptions in their analysis: that donors in 1995 are representative of donors from other years; that the number of donations in a 12-month

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period follow a Poisson distribution; and that recruitment programs could be designed to improve re-donation by as little as 5%. While these seem to be reasonable assumptions, it is worth mentioning that the Poisson distribution is used to determine the probability of rare events. In this analysis, this assumption is appropriate because the chance that a donor returns in a 1-year period is small and can be assumed to be independent from donor to donor for most months of the year. One might argue that particular national or regional events in 1995 perhaps skewed donation. However, donor frequencies appeared similar over the preceding 4 years, making this less likely.

First-time donors re-donated at the lowest rate (1.5 donations/1 year), and almost half of all first-time donors did not re-donate within 6 years. It would be interesting to know what information was provided to donors regarding returning over the next 1 year. Were they educated at registration, by their nurses, or at an exit interview? Did some centers fare better because of awareness (eg, community blood drives, local announcements)? Are donors routinely provided information on how much they can give over a 12-month period?

Applications for Clinical Practice

Programs should be developed to educate and contact about re-donation. Research into why first-time donors do not return within the following year to give blood and how to achieve at least small increases in return rates is needed.

–Review by David R. Spigel, MD

References