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## How Can We Improve Retention of the First-Time Donor? A Systematic Review of the Current Evidence

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## ABSTRACT

Blood products are critical to health systems and donations by voluntary nonremunerated donors are recommended. Worldwide, however, only around 5% of those eligible to donate do so and around half of those never return to donate again. This review focuses on what deters first-time donors, what predicts their retention, and what interventions may promote retention of this group. A comprehensive search of relevant databases identified 9 studies investigating motives and deterrents of first-time donors, 14 studies investigating predictors for first-time donors (13 whole blood [WB] and 2 plasmapheresis), and 15 studies (in 14 published articles) detailing interventions conducted on first-time donors. Drawing on an established blood donation taxonomy, studies were classified by 2 independent raters. Interventions were also classified into traditional, behavioral, or social science interventions. With only 2 eligible studies among first-time plasmapheresis donors, analyses focused on WB donors. First-time WB donors reported benevolent and collectivistic motivations, as well as personal benefits to commence WB donation. Self-reported deterrents have typically not been examined. Intention predicted first-time donor retention with intention determined by attitudes and a sense of (perceived behavioral) control. However, anxiety, adverse events, and deferrals all deterred retention. Traditional interventions, such as reminders and incentives, are widespread yet had only a small effect on return of first-time donors. Although behavioral science interventions such as fluid loading are effective, the strongest effect for the return of first-time donors was found when individual psychological support was provided. The purpose of this analysis was to identify the factors associated with the commencement and continuation of first WB donations. The current review revealed that self-reported motivators are typically not effective, and most successful predictive factors identified have not been translated into interventions. Future work would do well to identify, manage, and meet donors' expectations along with developing more individualized donation experiences. Blood donor research should delineate donor career stages; addressing first-time donor retention will support stable panels for blood collection agencies.

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Blood donation by voluntary nonremunerated individuals is critical to health systems worldwide [1]. Of those eligible to donate [2], only around 5% do so [1,3]. Only 50% of first-time whole blood (WB) donors return for a subsequent donation [4], with only 23% to 36% [5–8] of first-time donors returning within 12 months. Given that donation frequency in the first 1.5 years predicts long-term retention [4,7,8], increasing the proportion of first-time donors who promptly return may be one strategy to develop a stable donor panel.

There are significant benefits for both blood collection agencies (BCAs) and donors in a panel of retained donors. Devine and colleagues [9] identified that experienced donors are safer [10], have significant cost-benefit advantages [11,12], and allow for accurate forecasting [13,14]. Experienced donors are also less likely to have an adverse reaction compared with new donors [15–20], contributing further to retention.

A number of reviews have reported variations between donors as a function of donation experience [21–23]. In an overview of the psychology of blood donation, Masser and colleagues [23] proposed that self- and structural differences are likely between novice, early career, and established donors. The first study [24] examining predictors across the donor career found perceived behavioral control (PBC; ie, control over being able to donate, Theory of Planned Behavior [TPB] [25,26]) to be a less significant direct predictor and intention a stronger predictor of donor behavior for first-time donors (ie, no prior donations) than for experienced donors (ie, ≥ 1 prior donations). Bednall and Bove [27] reported that first-time donors more frequently identified perceived need for donation after the occurrence of a catastrophic event, time off work or school, social pressure (subjective norms), and reputation of the BCA as motivators of blood donation. In a subsequent review, Bednall and colleagues [28] found that donor experience moderated some predictors of blood donation. For example, as donation experience increased, self-efficacy (ie, confidence in being able to donate) and anticipated regret (ie, belief that negative feelings will be experienced if do not donate) became more influential and role identity (ie, perception of self) became less influential. These findings suggest important differences in determinants of donor behavior over the donor career.

In a review focused on the efficacy of interventions promoting blood donation, Godin and colleagues [29] concluded that interventions have not typically been developed for specific stages of the donor career, despite the recognition that differences in motivation exist between first-time and experienced donors. Interventions designed to increase

blood donation behavior in more experienced donors may not be as effective when used for the first-time donor.

Within all these reviews, the focus on first-time donors has been inconsistent, despite repeated calls [30,31] to examine each specific stage of the donor career. Understanding the critical period between the first donation and deciding to donate again can maximize retention. We review publications in order to identify the self-reported motivations (Q1) and deterrents (Q2) of first-time blood donors, the more objective measured facilitators (Q3) and inhibitors (Q4) of retention, and the intervention strategies (Q5) used with first-time donors. The review may suggest research opportunities that might allow BCAs to develop evidence-based strategies to maximize recruitment and retention of first-time WB donors.

**Methods**

PRISMA [32] (Preferred Reporting Items for Systematic reviews and Meta-Analyses) guidelines were followed.

*Eligibility Criteria*

Definitions of first-time and novice donors vary from zero to more than 4 donations [24,33–37]. This review only included studies where results were reported for donors making their first donation or those who had previously made only a single donation. Studies were included if the outcome variables were motivations/deterrents (Q1, Q2), predictors of intentions and/or behavior (Q3, Q4), and interventions (Q5) for first or second WB donation. Objective and self-reported donation behavior, donation intentions<sup>1</sup>, or registrations to donate were included.

*Search Strategy*

Databases were searched using a Boolean combination of key terms (see Table 1). To ensure an inclusive review, the only limits were English language and peer-reviewed publications relating to blood donors up to

<sup>1</sup> Despite the limitations of self-report intentions as a proxy for behavior, donation intentions were included because of its pivotal role in the TPB, a theoretical framework frequently applied to blood donation behavior.

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