



# ARROYO CENTER

- CHILD POLICY
- CIVIL JUSTICE
- EDUCATION
- ENERGY AND ENVIRONMENT
- HEALTH AND HEALTH CARE
- INTERNATIONAL AFFAIRS
- NATIONAL SECURITY
- POPULATION AND AGING
- PUBLIC SAFETY
- SCIENCE AND TECHNOLOGY
- SUBSTANCE ABUSE
- TERRORISM AND HOMELAND SECURITY
- TRANSPORTATION AND INFRASTRUCTURE

This PDF document was made available from [www.rand.org](http://www.rand.org) as a public service of the RAND Corporation.

[Jump down to document](#) ▼

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world.

## Support RAND

[Purchase this document](#)

[Browse Books & Publications](#)

[Make a charitable contribution](#)

## For More Information

Visit RAND at [www.rand.org](http://www.rand.org)

Explore [RAND Arroyo Center](#)

View [document details](#)

## Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents.

This product is part of the RAND Corporation monograph series. RAND monographs present major research findings that address the challenges facing the public and private sectors. All RAND monographs undergo rigorous peer review to ensure high standards for research quality and objectivity.

# Success of First-Term Soldiers

The Effects of Recruiting Practices  
and Recruit Characteristics

---

Richard J. Buddin

Prepared for the United States Army

Approved for public release; distribution unlimited



RAND

ARROYO CENTER

The research described in this report was sponsored by the United States Army under Contract No. DASW01-01-C-0003.

ISBN: 0-8330-3732-3

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

**RAND**<sup>®</sup> is a registered trademark.

© Copyright 2005 RAND Corporation

All rights reserved. No part of this book may be reproduced in any form by any electronic or mechanical means (including photocopying, recording, or information storage and retrieval) without permission in writing from RAND.

Published 2005 by the RAND Corporation

1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138

1200 South Hayes Street, Arlington, VA 22202-5050

201 North Craig Street, Suite 202, Pittsburgh, PA 15213-1516

RAND URL: <http://www.rand.org/>

To order RAND documents or to obtain additional information, contact

Distribution Services: Telephone: (310) 451-7002;

Fax: (310) 451-6915; Email: [order@rand.org](mailto:order@rand.org)

# Summary

---

## Background and Purpose

Recruiting is expensive. On average, it costs the U.S. Army about \$15,000 to recruit one soldier,<sup>1</sup> and it must recruit 80,000 to 90,000 each year. If a soldier fails to complete his or her first term, the Army must spend a like amount for a replacement. Thus, it is very much in the Army's interest to minimize losses at every phase of the first term. This has become more important in recent years because the Army, during the lean recruiting years in the late 1990s, vigorously expanded its recruiting effort by adding and expanding enlistment incentives, by increasing recruiting resources, and by modifying recruiting practices.

This monograph focuses on the implications of these decisions for the manning and success of first-term soldiers. It also examines how the Army manages first-term soldiers. Training losses and retention problems drive up the demand for new recruits. Given the expense of recruiting and training losses, the Army should assess whether different management strategies could improve the success rates for first-term soldiers. It may be possible to cut attrition without compromising Army standards.

The research reported here is based on Army contracts for non-prior-service enlisted personnel for FY1995 through FY2001. Since the focus was on first-term success, it did not use data from more re-

---

<sup>1</sup> DoD estimated Army recruiting costs at over \$14,000 per recruit in FY2001 (Asch et al., 2002). The Army was using \$15,000+ in FY2003.

cent years. Many recruits in the FY2002 cohort did not join until FY2003, and we could only observe their attrition behavior for the first year or so of their term. Many recruits in the FY2002 cohort did not join until FY2003,<sup>2</sup> and we could only observe their attrition behavior for the first year or so of their term. Still, the database used is quite rich, containing information on about 550,000 enlistment contracts.

The research examines recruit progress at various steps during the first term.

- Delayed Entry Program (DEP)<sup>3</sup> attrition.
- Fitness program participation (for recruits who fail the initial fitness exam).
- Basic Combat Training (BCT) attrition.
- Early attrition (separation in the first 6 months).
- First-term attrition (separation in the first 36 months).
- First-term promotion to sergeant.
- First-term reenlistment.

At each step, the analysis examines several types of factors that might affect recruit success. First, individual background and demographic characteristics may affect how well recruits do in the first term or their match with the Army. Second, features of the enlistment contract have implications for Army manning. For example, if the Army succeeds in attracting recruits for longer terms (and these soldiers complete these terms), then it can reduce its recruiting mission for maintaining a steady-state force. Third, when the recruiting environment is poor and the Army is struggling to meet missions, recruiters might accept more “marginal” recruits who are ill-suited to the Army than they would in a strong recruiting period. If so, these mar-

---

<sup>2</sup> For our purposes, since we are examining the effects of recruiting practices and recruit characteristics *at the time of recruitment*, we group soldiers by “cohort” based on the dates of their contracts.

<sup>3</sup> DEP is now called the Future Soldier Program. This document will maintain the reference to DEP, since this is the program that was in effect for the soldiers whose attrition patterns we examined.

ginal recruits might wash out in the DEP and early attrition and provide little service to the Army. Fourth, recruiter characteristics might predict how well an individual recruit does in the Army. For example, recruits might identify with a young recruiter or a recruiter from the local area, and this process might produce recruits who are better matched with the Army.

The key results are described below and summarized in Figure S.1.<sup>4</sup>

## What Makes a Difference

**Length of time in the Delayed Entry Program (DEP).** The data show that the longer an individual spends in the DEP, the higher the DEP attrition rate. A long time in the DEP means that the new recruit has substantial time to change his or her mind about enlistment. By reducing the time that non–high school seniors spend in the DEP, the Army has succeeded in driving down DEP losses by attracting more recruits who are willing to accept short DEP times. However, an important gauge of whether the DEP loss rates have improved would be whether we would expect recruits with identical characteristics, features of their enlistment contract, recruiting environment, and recruiter characteristics to have higher or lower attrition in FY2001 than in FY1995. Our attrition model, which holds constant factors other than DEP time, shows that the adjusted rate actually rises by

---

<sup>4</sup> Some of the categories in Table S.1 were not applicable to the analysis of some of the first-term outcomes. Recruit occupation is not likely to have a direct effect on DEP attrition, fitness participation, BCT attrition, or early attrition, because the recruit has not yet reached his or her first assignment in the occupation. Much of the initial orientation and training is similar across occupations. Fitness training unit (FTU) participation is only observed for recruits who complete DEP, so it is not relevant to the model of DEP attrition. We examine whether FTU participants complete BCT and the first six months, but we did not look at subsequent performance in the first term. The goal of the program is to prepare recruits for the rigors of these initial training months, so we did not expect a direct effect of the program beyond these months. Finally, the effects of BCT and the timing of training were not relevant for recruits who did not complete DEP. We did not expect any direct effects of the BCT/timing variables on either the promotion or retention models.

**Figure S.1**  
**Summary of Key Results**

	DEP attrition	Fitness participation	BCT attrition	Early attrition	First-term attrition	E-5 promotion	Reenlistment
Time in DEP	√	√	X	X	X	X	X
Gender and education	√	√	√	√	√	√	√
FTU participation	NA	NA	√	√	NA	NA	NA
BCT base/time	NA	√	√	√	X	NA	NA
Occupation	NA	NA	NA	NA	√	√	√
ACF, bonus, enlistment length	√	X	X	X	X	√	√
Recruiting environment	√	X	X	X	X	X	X
Recruiter characteristics	√	X	X	X	X	X	X

√ Makes a difference      X Makes no or modest difference      NA Not applicable

RAND MG262-S.1

0.4 percentage points. Noteworthy, however, is the fact that actual time in DEP has little bearing on how well recruits do in BCT or in Advanced Individual Training (AIT). Thus, the Army should investigate whether greater emphasis on reducing DEP losses is cost-effective.

The Army should weight the broad implications of changes in DEP policy on both recruiting and the success of new recruits in the Army. A large DEP pool helps dampen short-term fluctuations in the recruiting market. At some point, however, new recruits may be uncertain about their plans and less likely to subsequently follow through and start active duty. Even if high school seniors are cheaper to recruit than graduates, these costs might be offset by the higher loss rate in DEP and the subsequent cost of recruiting a replacement.



**Gender and education.** Women and recruits with GEDs (General Educational Development certification) drop out at higher rates than do men and recruits with high school diplomas. For example, women have persistently higher loss rates at each step from DEP through the first six months. For each 100 contracts, more women than men leave during DEP, and the pattern continues in BCT and AIT. For each 100 men recruited, 76 actually complete the first six months of active duty. For each 100 women recruited, only 63 will be left after six months. Put another way, if the Army expected to fill the same number of first assignment positions with women as with men, they would need to recruit 83 men for each 100 women. The pattern for soldiers with GEDs varies somewhat from that of women, but these soldiers still depart at greater rates than do comparable soldiers with high school diplomas. Recruits with GEDs do fine in DEP and BCT, but their loss rates begin to rise in the AIT period. One hundred new GED recruits translates into 69 recruits completing training. For high school graduates and seniors, the number is 74 recruits successfully completing training.

The problem continues through the first term. Only 40 of 100 women complete their first term, compared with 59 men. The numbers for GEDs are about the same as for women, with only 43 of 100 recruits with GEDs remaining by the end of the first term. Interestingly enough, women who do complete their first term tend to reenlist at a somewhat higher rate than their male counterparts, suggesting that the women who remain at that point like their military career opportunities.

**Participation in fitness training units.** Individuals who enter the Army in poor physical condition are unlikely to complete their initial training. New recruits are assigned to fitness training units (FTU) if they fail an initial fitness test that is administered at the reception station at each training base.<sup>5</sup> The course is intended to prepare new re-

---

<sup>5</sup> The Army has restructured its fitness training recently, and the FTU program in effect for recent cohorts has been abandoned. The Army is now asking recruiters to monitor the fitness levels of new recruits in the DEP, so that new recruits will arrive at the reception station

recruits for the physical demands of BCT and reduce injuries during BCT. A key question is whether FTU participants are able to meet fitness standards and do well in training.

The evidence suggests that they do not. We analyzed this issue using a propensity score methodology that attempts to replicate an experimental design by comparing outcomes (attrition) for otherwise very similar individuals. Individuals are aligned based on their predicted probability of FTU assignment at each base in each month, and each FTU participant is matched with a nonparticipant with a similar probability of using FTU assignment. This matching of participants and nonparticipants balances the two groups on the observed factors that affect FTU assignment. The results from the propensity score model suggest that FTU training is doing little to counter the tendency of its participants to struggle in the Army. The overall probability of an FTU participant leaving during the first six months (early attrition) is 28 percent, as compared with a rate of 16 percent for the group of matched controls not selected for FTU.<sup>6</sup> Interestingly enough, fewer FTU participants depart the Army for fitness reasons; performance and conduct cause most departures. This suggests that FTU participants may have other problems in addition to fitness when they join the Army.

Why do the fitness trainees fare so poorly? The evidence is incomplete, but three (possibly interrelated) types of effects are possible. Drill instructors may view these recruits as substandard for not arriving in proper condition and may be less tolerant of any infractions. FTU participants may be discouraged by failing the initial fitness

---

prepared to pass an entry-level fitness screen. This program is new, and we are not aware of any analysis of its efficacy.

The Army also has rehabilitation units at the training bases for recruits who are sick or injured during training. These units are designed to help these recruits get back in physical condition and continue their training.

<sup>6</sup> Our results do not suggest that FTU participation “causes” these recruits to have higher early attrition than nonparticipants with similar characteristics. Rather, participants may have some unmeasured characteristic that makes them poor prospects for the Army. If low initial fitness levels are difficult to overcome, then perhaps the Army should implement a better test for these skills in DEP. Alternatively, perhaps the Army needs to restructure the FTU programs to improve their effectiveness.

screen and have second thoughts about their decision to join the Army. Or it may be inherently impossible or impractical to condition some unfit recruits.

**BCT base and time effects.** BCT attrition varies substantially across bases and at each base over time. A comparable<sup>7</sup> recruit arriving at Fort Jackson in some months would have a 12 percent chance of failing as compared with only a 3.2 percent chance of failure at Fort Knox. In principle, high attrition rates might reflect a stricter standard of conduct and appropriately screened recruits who were unlikely to succeed in the Army. However, the results showed that the BCT attrition rate of each base/month cohort has no correlation with the subsequent attrition rate of the cohort. Indeed, the high loss rates in BCT, if they reflect higher standards, *may* be inappropriately screening out many recruits with good downstream potential.

**Occupation.** All other things equal, combat arms soldiers have higher attrition and lower reenlistment rates than do soldiers in other occupations. The reasons are unclear. These different attrition and reenlistment rates may reflect cultural differences in how problems are handled in combat units. Or they may reflect the nature of the duty. Combat soldiers may be frustrated by frequent arduous field exercises that entail considerable time away from comforts and families. Combat jobs have no civilian counterparts, so first-term soldiers may see little payoff to successfully completing their terms. At the end of their terms, combat soldiers might be anxious to leave the Army and acquire civilian job skills.

**Promotion.** Early promotions have a strong effect on first-term reenlistment and help the Army retain a leadership core for the enlisted force. Some soldiers are identified as “fast burners” by their units and given early promotions to E4. These soldiers tend to continue on a fast track for sergeant (E5) and are much more likely to reenlist than are similar soldiers who are promoted at an average or slower pace. The mean promotion time for four-year enlistees who make sergeant in the first term is 38 months. The model results indi-

---

<sup>7</sup> Note this means we are controlling for gender and other demographic differences across bases.

cate that 53 percent of recruits with promotions at 38 months will reenlist, as compared with the overall rate of about 46 percent.

## What Makes No or Only a Modest Difference

**Army College Fund (ACF), bonuses, and term length.** These characteristics of enlistment contract have little bearing on first-term attrition rates. While these programs might help attract new recruits, the evidence shows that recruits attracted in this way do not have significantly different first-term attrition. Moreover, after controlling for recruit characteristics, occupation, and promotion speed, ACF participants are neither more nor less likely to reenlist at the end of the first term. Bonus recipients are actually more likely to stay than are other comparable recruits who do not receive an enlistment bonus. These results suggest that the Army should not be concerned that ACF and bonuses attract recruits who are prone to leave at the end of the first term.<sup>8</sup>

**Recruiting environment.** During lean recruiting times, recruiters may face increased pressure to meet recruiting targets. If recruits are rushed through the enlistment process at the end of a month or at some other deadline to meet the recruiting station mission, it might be “good” for recruiting, but these gains might be offset if the recruits brought in this way fare poorly in the first term. However, the evidence shows that recruiting environment has little effect on how well recruits do in the first term. There is some evidence that recruiting station pressures affect DEP and training attrition, but the effects wane later in the term. In other words, the effect of “rushing” recruits shows up in the demographics of the recruits rushed, not as a direct result of the rushing. If the rushed recruits are disproportionately

---

<sup>8</sup> This study examines the effects of enlistment options conditional on the decision to access in the Army. Enlistment options also affect the decision to join the Army, and these enlistment effects may confound the effects on first-term outcomes reported in this study. A more complete approach would require systematic variation in enlistment options to different recruits in a controlled experiment.

members of high-attrition groups, they will demonstrate higher attrition rates.

**Recruiter characteristics.** The results show little evidence that some types of recruiters are better at identifying good matches for the Army than are others. Recent policies emphasize younger recruiters or return recruiters to their home states. Our evidence shows that these types of policies have little downstream effect on how well recruits do during the first term. For example, an Omaha senior might relate well to a young recruiter from the Omaha area and be more likely to join the Army, but we see little evidence that this recruit is better matched and more likely to succeed in the first term. These policies may well pay dividends if these recruiters generate more contracts, but the Army should monitor this issue closely to determine whether targeting recruiters in this way leads to an increase in contracts.

## What the Army Should Do

Demographic and background characteristics are key factors determining the probability of first-term success. At each stage in the first term, some groups are more likely to succeed than are others. This is not to say that the Army should abandon the groups that do not do well. But we do suggest that the Army could target its efforts more precisely to focus on the members of these at-risk groups who have the highest chances of success. Of course, this targeting process should also consider the recruiting costs of alternative recruiting strategies—certainly, the downstream performance of alternative types of recruits should be evaluated in deciding how to allocate the recruiting effort. Also, some programs do not appear to be giving the Army a reasonable return on its investment, and the Army should rethink them. We recommend that the Army take the following actions:

**Shorten DEP for high school seniors.** The current policy of recruiting seniors early in their graduation year results in high DEP attrition rates. The Army and other services should consider a coordi-

nated policy change to delay signing up seniors until later in the school year when their plans are more firmly entrenched.<sup>9</sup>

**Consider alternatives for fitness screening and subsequent handling of recruits.** The evidence shows that individuals who fail their initial fitness screen at the reception station are unlikely to complete the first six months of training. It may be the case that recruits who fail to meet some minimum threshold of fitness are unsuitable for the Army or too much of an institutional investment to prepare for training. Perhaps they should be screened out by tougher recruiting standards or better prepared for the Army during the DEP period.

**Monitor effectiveness of training standards and policies.** The large swings in BCT attrition rates suggest inconsistent application of training standards and policies. The evidence does not support the idea that tougher standards at some places or times have any bearing on the first-term success of recruits who complete training. The Army should carefully investigate what training conduct and performance standards are consistent with subsequent AIT and post-training success. The goal should not be to standardize or lower rates arbitrarily but rather to identify what problems can be mediated and what problems are precursors to longer-term failure.

**Investigate policies to help at-risk demographic groups.** Army recruiting cannot afford to screen out women, GEDs, and other groups who collectively have high attrition rates. The Army needs to determine whether it can do a better job in informing these groups about what is expected of them in the Army and preparing them to meet those expectations. In addition, the Army should develop programs to help at-risk recruits adapt to the Army and show them how they can improve their chances of success. Finally, screens that would

---

<sup>9</sup> The goal of driving down DEP losses should be tempered by two factors. First, some planning flexibility is useful to prospective recruits, so shortened DEP may increase recruiting costs. Second, some recruits who have second thoughts about the Army and leave during DEP may be ill-suited for service. Army resource costs would increase if unhappy recruits complete DEP, start active duty, and then fail early in the first term.

aid in accomplishing these goals might also help identify at-risk individuals even in groups that normally have low attrition.

**Monitor whether the promotion system rewards the most able.** Promotion speed is an important factor in shaping first-term reenlistment and the quality of the career enlisted force. We did not analyze the intricacies of the Army promotion system, but early promotion is an important sign of progress and encourages soldiers to reenlist. If the promotion system correctly identifies “quality” early in the term, then early promotions are building an effective core of unit leadership. Alternatively, however, if some potential leaders are overlooked in the first term, they may be frustrated and leave the Army. Given the critical role played by promotions, the Army should review whether the system is identifying what factors are important for leadership success in each occupation and strengthen incentives for reaching well-specified milestones.

**Get better data.** Collecting data is certainly not a glamorous endeavor, but systematic and comprehensive data systems are the key to identifying what policies succeed or fail. Specifically, the Army should consider the following:

- **Build an integrated, automated system to track recruit problems, remediation efforts, and results.** Current automated data files provide too little information about attrition. In addition, the Army should track a history of problems and remediation efforts that were taken to address those problems. This new information system would help the Army identify the underlying reasons for attrition and structure policies to address those reasons. The tracking information would also help the Army sort out what types of interventions and mediations are effective.
- **Implement new programs with an eye to evaluation.** As the Army implements reforms in training and first-term personnel policy, it should carefully document the timing, nature, and application of the reforms, so the success or failure of each reform can be assessed. While full-scale evaluation of each change is not necessary, careful documentation provides the potential for sub-

stantive follow-up of the reasons for a shift in training success, attrition, or reenlistment behavior.

- **Collect detailed information about working conditions in Army occupations.** Current analysis of attrition, promotion, and reenlistment decisions is hampered by little systematic information about working conditions, and the way these conditions are perceived by soldiers in different occupations. The information would include data on weekly hours, schedule uncertainty, dangers, personnel tempo, time away from home, and other factors that are likely to differ across occupations. This would help the Army identify what specific attributes of military jobs are related to attrition or reenlistment problems. While some of this information is already available, we recognize that gathering the additional information will add to the administrative burden. Still, even a modest improvement in retention could translate into substantial dollar savings and reduce the administrative burden of processing soldiers who leave early.