Engaging veterans with substance abuse disorders into a research trial: success with study branding, networking, and presence

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Abstract

Recruiting and retaining clients in health interventions can be challenging especially when targeting multiple behavior change in high-risk populations. To inform the methods of trials working with similarly complex clinical populations, we describe multi-pronged efforts to recruit and retain a representative sample. In a two-group RCT, veterans were recruited from a Veteran Affairs Medical Center. The goal was to enroll 200 participants over a 25-month period, and to exceed 70 % follow-up for all treatment arms. To meet these goals, a four-pronged strategy was developed: branding, outreach/networking, onsite presence, and incentives. In month 1, 32 % of the proposed sample size was met ($n=64$), and by month 2, 45 % ($n=90$); the recruitment goal ($n=200$) was achieved 13 months ahead of schedule. Retention exceeds 90 % at all time points out to 18 months. The multipronged recruitment and retention plan was efficient, cost effective, and may generalize to other health promotion initiatives.

Keywords

Veteran health administration, Recruitment, Retention, Multiple-risk behavior change, Methods research

INTRODUCTION

The health and wellbeing of those who have served in the US armed forces is a national priority. The Veterans Health Administration (VHA) operates the largest integrated healthcare system in the US [1], serving 8.3 million veterans annually at over 1700 sites of care. Given the aging veteran population, with a median age of 57 and 80 % over age 45 [2], chronic disease prevention is of increasing focus. Launched in 1997, the computerized patient medical record (CPRS) is a national VHA initiative, which allows for the use of clinical reminders and provider prompts to screen for high-risk behaviors; patients then can be referred to a cadre of VHA prevention and wellness programs, available to veterans at no charge or low cost, such as those led by the National Center for Health Promotion and Disease Prevention [3].

The impact of disease prevention services on health outcomes and downstream medical costs, however, is a function of program efficacy and reach (i.e., impact

Implications

Practice: Individuals with addiction problems often have additional risk behaviors in need of treatment but can be challenging to engage, so practitioners need to consider multiple strategies for outreach and ongoing engagement in health interventions.

Research: For maximizing external validity of research findings, researchers ought to utilize a multi-pronged approach for efficient recruitment and strong retention.

Policy: Investments in treatment programs need to consider planning and resources for outreach and ongoing engagement.

= reach $\times$ efficacy). For example, veterans have access to evidence-based telephonic and web-delivered quit smoking programs, broad coverage of cessation pharmacotherapy, and at most, VA hospitals, availability of in-person cessation counseling via one or more clinics [4]. Despite access to comprehensive tobacco treatment services, the smoking prevalence among veterans remains unchanged since 2008, at a level similar to that of the US adult population [5]; and among US service members deployed to Iraq and Afghanistan, is double the rate of nonmilitary Americans (45 vs. 19 %) [6]. Although the VHA offers empirically based smoking cessation services free of charge, engagement has remained a challenge [7].

The VHA aims to broadly address the behavioral risks of veterans for optimizing health. In addition to tobacco, VHA core prevention areas are alcohol use, physical activity, diet, weight management, stress management, clinical preventive services, safety, and health care communication [8]. Yet, attention to multiple risk behaviors brings complexities. The clinical time and expertise required of providers is increased; and critically, patients may lack the requisite means, initiative, motivation, or confidence to make changes in one or more risk behaviors [9]. Notably, patients least likely to avail themselves of prevention programs

may be those in greatest need of them. In the civilian population, individuals with substance use problems are more likely to smoke cigarettes [10], have an unhealthy diet, be inactive, have difficulty managing stress [11], and are less likely to engage in and stay active in prevention service programs [12]. Hence, proactive outreach, support, and ongoing communication may be needed to connect veterans in substance abuse treatment with preventive health services.

The focus of this paper is on the recruitment and retention strategies used for a study addressing multiple risk behaviors among veterans with alcohol or drug problems. Focused on clients in substance abuse treatment, challenges with research recruitment and retention were anticipated due to low motivation to change additional risk behaviors, frequent and abrupt changes in housing, lack of access to reliable transportation, and relapse to substance abuse.

To reach enrollment goals within budget, timely recruitment of research participants is essential [13, 14]. To generalize study findings, the sample needs to represent the target population. Failure to enroll and retain participants efficiently and sufficiently can bias the sample, compromise the validity of results, and even lead to premature termination of research [15]. The Centers for Disease Control sets a minimum criterion of 70 % follow-up for all treatment arms for best evidence in prevention research [16].

Prior research has reported on effective recruitment strategies, including among veterans. In particular, direct media, direct mailings, use of websites (e.g., Craigslist), and social media (e.g., Facebook) have been highlighted as effective approaches [17–19]. Media approaches may miss hidden populations, lack personal contact, and can be costly, in some studies exceeding US\$1500 per participant enrolled [20]. Direct mailings, though less expensive at US\$143 per enrollee, can be challenged by privacy considerations. For example, mailing letters to those in substance abuse treatment may compromise federal patient privacy and confidentiality protections. There has been a growing emphasis on the need to use multiple methods in recruiting participants [21], although a specific formula has not been identified. A 2010 Cochrane Review reporting on strategies to improve recruitment in RCTs called for evaluations of recruitment strategies in future trials [22]. Of further interest, most studies reporting on effective recruitment strategies have not examined enduring effects on retention. Study incentives [23], convenience [24, 25], friendly/trustworthy research staff [26, 27], project identity [26, 28, 29], and support from clinical staff can aid recruitment and retention. Further strategies specific to retention found to be helpful include collecting detailed contact information from participants, use of Electronic Medical Records [30], regular contacts/reminders, and stable staffing over time [31].

Within the context of a single-site clinical trial targeting multiple risk behaviors with veterans in substance abuse treatment, this paper describes the multi-pronged localized efforts implemented to recruit and retain a representative sample. The findings may inform the methods of future research trials working with similarly high-risk clinical populations.

METHODS

Design of the trial

The recruitment and retention plan was developed for a two-group, randomized controlled trial evaluating, relative to usual care, the acceptability and initial evidence of a novel multiple health risk intervention with veterans in substance abuse treatment. The trial intervention was client-centered and individually tailored, combining a computer-assisted intervention with brief counseling and referral. The transtheoretical model of behavior change guided the intervention framework [32], and the counseling followed the principles of motivational interviewing [33]. Over the course of the study, counseling was delivered by three part-time counselors, all of whom completed introductory and advanced motivational interview training. Assessed and targeted behaviors were as follows: tobacco, diet (fruits and vegetables, low-fat, healthy eating), physical activity, sleep hygiene, stress management, depression prevention, medication compliance (cholesterol, blood pressure, hepatitis C, HIV/AIDS, and psychiatric), sexual risk behaviors, and age/gender-appropriate cancer screenings (colorectal, breast, cervical). The computer-assisted intervention identified participants' stage of change for each risk behavior and provided feedback on the single most important step they could take to begin progressing. A counselor reviewed the report with participants and provided motivational interviewing coaching and referrals to relevant behavior change services at baseline (approx. 60 min) and at 3, 6, and 12 months follow-up (approx. 30 min each). The referrals were largely to services at the treating VHA hospital, most available at no cost to the veterans. Centrally, intention to change risk behaviors was not a requirement for study enrollment. The comparison group received usual care through the VHA hospital's substance abuse treatment and primary care clinics with access to the same referral services.

Sample

Adult veterans were recruited from the substance abuse treatment clinics at the San Francisco Veterans Affairs Medical Center (SF-VAMC) including: the Substance Abuse Day Hospital, an intensive outpatient treatment program; the Opioid Replacement Treatment Clinic, a narcotic treatment program; and outpatient clinics (the Substance Use Posttraumatic Stress Disorder Clinic, the Drug and Alcohol Treatment Clinic). The Access Center Transition Group

was added as a recruitment site in March 2012, shortly after its creation. The Access group differed from the other substance abuse treatment programs in that abstinence was not a goal of treatment, it required less commitment, and was less structured; 71 % of study participants recruited from the Access group eventually transitioned into one of the more structured substance abuse treatment programs.

To be study eligible, patients (≥ 18 years of age) had to be in an SF-VAMC substance abuse treatment program and plan to reside in the San Francisco Bay Area over the next 18 months. For patients in the day hospital and the transition group, potential participants were not screened until they completed 1 week of treatment, as the first week was the most intensive for services. Exclusion criteria were unstable psychosis or mania or a disabling organic mental disorder, purposefully minimal to maximize generalizability. Research staff met with eligible patients to describe the study, review the consent form, and if all approved, obtain written informed consent. All persons gave their informed consent prior to their inclusion in the study.

Participant recruitment strategies

For this developmental study, the recruitment goal was to enroll 200 participants over a 25-month period. The projected sample size was designed to provide evidence of treatment feasibility and acceptability with estimates of effect size and was limited by the grant timeline and budget, which had been reduced due to federal funding constraints. To meet this goal, a four-pronged strategy was developed including the following: (1) branding, (2) outreach and networking, (3) onsite presence, and (4) use of incentives (Fig. 1).

- Branding: A memorable project name, the Total Health Project, was selected and printed on all study materials including plastic platinum “credit”

cards, army green and black silicone wristbands, key chains, and dog tags (Fig. 2). The study-branded items were distributed to providers for making referrals and to participants for study identity and branding.

- Outreach and Networking: Prior to study start, research staff met individually with clinicians at the substance abuse treatment clinics and attended staff meetings to gain an understanding of the treatment environment, build rapport, present the study aims, and disseminate study information and materials. The opioid replacement clinic agreed to individually distribute “Dear Patient,” letters to their clients. The letters stated that research staff would contact them unless the patient opted out. At the weekly day hospital patient community group, study staff briefly introduced themselves to new patients, presented the purpose of the study, and was available to talk with interested patients after. For the transition group, the facilitator would introduce the project at the end of the meeting and inform patients that study staff would be outside the door as they leave to provide more information about the potential opportunity to those who were interested; staff was then available to answer questions and hand out study swag.
- Onsite Presence: Printed study flyers were displayed throughout the SF-VAMC, and an electronic monitor ad ran in the mental health waiting room outside of the DAT and SUPT clinics. Onsite office space for the project was made available in the opioid replacement clinic with the support of the Chief of Substance Abuse Treatment at the SF-VAMC who was a study co-investigator. Approachable, respectful, and accessible, study staff maintained an open-door policy for walk-ins for the duration of the study. Study staff also participated in SF-VAMC campus-wide health promotion events, such as the Great American Smokeout and health fairs.

Fig. 1 | Multipronged strategy diagram. This figure illustrates the four-pronged recruitment and retention plan

Fig. 2 | Study branding materials pictures. This figure includes three photographs of the study-branded items that were distributed to providers for making referrals and to participants for study identity and branding

- **Participant Incentives:** Study incentives were US\$25 per interview plus a US\$25 bonus for completing all assessments for a possible total of US\$150. If cash was a concern to a participant's sobriety, a US\$25 gift card was offered to the participant as an alternative during the informed consent process. Participant incentives were comparable to prior studies with similar time commitments [34].

Participant retention strategies

Several of the recruitment strategies served a dual-retention function. Study-branded materials, for example, provided a reminder of study involvement with printed contact information. The team's presence in the opioid replacement clinic provided personal ongoing contact and easy accessibility for completing assessments when due. Other substance abuse clinics held meetings in the group rooms in the ORT clinic, so the study space was convenient for participants across the different clinics. Participant incentives were provided at follow-ups along with the bonus for 100 % completion.

To aid retention efforts, study staff collected contact information at baseline and updated the information on an extensive contact form over time, including mailing addresses, phone numbers, e-mail addresses, social network usernames (e.g., Facebook), and three secondary contacts (e.g., family members, friends, clinicians, payees, parole officers). Involvement in programs, events, and organizations run by the VA (e.g., VA Stand Downs, the Vet Center, VetConnect) and out in the community (e.g., 12-step meetings, residential treatment facilities) also was assessed. For chronically homeless participants, information was gathered on regular hangouts and sleeping locations (e.g., free meal programs, shelters, cross-streets, parks) and places where letters/messages could be left. The form also asked participants to specify the three best ways to contact them for follow-up assessments. The contact form used was modeled after one that was successful

with retention efforts in working with patients recruited from inpatient psychiatric units [30], a similarly complex population.

Study staff entered participants' contact information and documented all attempted and completed contacts in a client relationship management software program. Programmed alerts notified staff of upcoming and overdue follow-ups. Additionally, the SF-VAMC electronic medical record was used to update contact information and to identify upcoming medical appointments for participants lost to follow-up.

Not all of the recruitment and retention strategies were implemented at each clinical site, Table 1 depicts the clinical sites and where specific strategies were implemented.

Measures

Measures and data points of interest for this evaluation of study recruitment and retention were (1) recruitment rates (i.e., number of participants enrolled per measure of time relative to projected enrollment and number of participants enrolled/total number approached), (2) recruitment by clinic site, (3) retention rates (i.e., number of participants retained/total recruited per measure of time), and (4) sample representativeness in relation to the recruitment clinic patient populations. To describe the sample, demographic characteristics were assessed including gender, age, ethnicity/race, marital status, residential status, employment status, and education. We also measured and report on participants' primary substance of abuse as assessed by the addiction severity index (ASI) [35].

Analyses

Analyses were conducted using SPSS version 20. Descriptive statistics means and frequencies were run to describe the sample with regard to demographic variables, substance abuse, and clinic enrollment. Recruitment rates were plotted over time in relation to predicted rates from the initial grant proposal. Retention rates were tracked over time as the number of participants interviewed at follow-up divided by the total

Table 1 | Enrollment and recruitment/retention strategies by clinical site

	ORT	SADH	SUPT	DAT	Transition group
Enrollment (<i>n</i> /total clinic)	68/128	70/149	11/136	78/235	23/ ^a
Percent of clinic enrolled	53 %	46 %	8 %	33 %	^a
Recruitment/retention strategy					
Meetings w/ clinic staff	X	X	X	X	X
Study item distribution to clinic staff	X	X	X	X	X
Presentation to groups		X			X
Electronic monitor ad			X	X	
"Dear patient" letters	X				
Onsite office space	X				

^a Clinic data from the SF-VAMC was not available for the transition group

ORT Opioid Replacement Clinic, SADH Substance Abuse Day Hospital, SUPT Substance Use Posttraumatic Stress Disorder Clinic, DAT Drug and Alcohol Treatment Clinic

number of study participants, minus participants who were deceased. To assess sample representativeness, data from the study measures at baseline were compared to SF-VAMC clinical census data on patients enrolled in the SF-VAMC substance abuse programs from October 24, 2011 to July 19, 2013, which was the recruitment time period for this study. The Access Center Transition Group was not included in this analysis, as the SF-VAMC did not track data on their patients (Clinicaltrials.gov no. NCT0145206 <http://clinicaltrials.gov>).

RESULTS

Recruitment

Enrollment opened October 24, 2011 and proceeded much more quickly than anticipated (Fig. 3). In week 1, 13 % of the proposed sample size was enrolled ($n=26$), in month 1, 32 % ($n=64$) and by month 2, 45 % ($n=90$). The recruitment goal of 200 was achieved 13 months ahead of schedule. Due to the savings in personnel time and cost, the study sample size was expanded to $n=250$.

The volume (and costs per item) of study-branded materials included 500 bracelets (46 ¢ each), 590 platinum cards (52 ¢ each), and 250 dog tags (85 ¢ each) for

a total cost of US\$749 or US\$3 per enrolled participant. Personnel resources for recruitment and follow-up have been one full-time employee.

Sample description and representativeness

The sample represented 35 % of the total number of patients treated at the SF-VAMC substance abuse treatment programs during the time of study recruitment, plus another 23 participants in the Access Group. The drug and alcohol treatment clinic yielded the largest absolute number of participants, but also had the greatest patient base from which to draw. In terms of the proportion of eligible patients recruited, the study had its greatest recruitment success with the opioid replacement clinic where 68 out of 128 (53 %) possible participants were enrolled, followed by the day hospital 70/149 (46 %), and then the drug and alcohol treatment group 78/235 (33 %).

The sample was ethnically and socioeconomically diverse and comparable to the SF-VAMC substance abuse treatment program population on gender, race, and marital status (Table 2), differing on education (more likely to have a high school degree/GED), employment (more likely to be unemployed), primary substance of abuse (more

Fig. 3 | Recruitment accrual. This figure compares the predicted number versus the actual number of participants that were enrolled into the study each month during study enrollment

Table 2 | Characteristics of the sample and the San Francisco VA Medical Center substance abuse treatment programs

Demographic variable	Levels	SF-VAMC <i>n</i> =648 (%)	Total health <i>n</i> =250 (%)	Group comparison <i>p</i> value
Gender	Males	97.2	96.4	0.541
	Females	2.8	3.6	
Race	Non-Hispanic Caucasian	46.9	44.8	0.613
	African-American	33.2	34.0	
	Hispanic	8.2	8.4	
	Asian/Pacific islander	3.9	2.4	
	Multiracial/other	7.9	10.4	
Marital status	Divorced/separate/widowed	53.3	53.2	0.133
	Single	35.3	39.6	
	Married/partnered	11.4	7.2	
Residential status	House/apartment	42.8	38.8	<0.001
	Homeless	22.2	7.6	
	Halfway house/therapeutic community	18.4	39.2	
	Other	16.7	14.4	
Employment status	Unemployed	35.6	62.8	<0.001
	Retired	34.4 ^a	22.8	
	Employed	14.0	10.8	
	Student	2.0	3.2	
	Missing/other	14.0	0.4	
Education	12 or more years	45.4	61.6 ^b	<0.008
	Less than 12 years	42.6	38.4	
	Missing	12.0	0.0	
Primary substance of abuse	Alcohol	49.7	32.4	0.027
	Cocaine	20.1	26.0	
	Opiates	16.5	21.6	
	Other	13.7	8.4	
	Polysubstance	Not coded	11.6 ^c	
Clinic	Opioid replacement treatment	19.5	27.2	<0.001
	Substance abuse day hospital	23.1	28.0	
	Drug and alcohol treatment	36.4	31.2	
	Substance abuse PTSD	21.1	4.4	
	Access center transition group	0.0	9.2	
Age	18–39	15.7	11.2	0.037
	40–49	20.4	14.8	
	50–58	39.5	47.2	
	>58	24.5	26.8	

^a For the SF-VAMC clinic data, includes disabled^b For the total health data, includes GED^c 8.4 % alcohol and drug

likely to identify opiates and cocaine, while the clinic population was more likely to identify alcohol), and living situation (less likely to be homeless). Some of the differences may be due to response options and coding: the study combined GED with high school graduate, the SF-VAMC data did not; the SF-VAMC separated out disabled from unemployed, the study assessment did not; and the SF-VAMC did not include a code for poly-drug use, while the study did. The majority of poly-drug users in the study sample were alcohol users. The study incentive may have been particularly appealing for the unemployed who also may have had more unstructured time available to participate. The difference in homelessness was likely

due to patients un-housed upon entry into clinical services (and coded as so) receiving placement in halfway houses/therapeutic communities by the time of study enrollment, which was at least 1-week post-treatment initiation for the acute care services.

Retention

The 3-, 6-, and 12-month follow-ups have closed with retention at 94, 95 and 92 %, respectively. The final 18-month follow-up assessments will end October 2014. Retention as of July 21, 2014 is exceeding 90 % for the 18-month follow-up (Fig. 4). Participants lost to follow-up were those unable to be located, incarcerated, or

Fig. 4 | Sample recruitment and retention flow chart. This figure illustrates the number of persons assessed, excluded, enrolled, and randomized into the study and includes follow-up rates for all treatment arms. *1pt incarcerated at time of follow-up. **2 pts incarcerated at time of follow-up. ***3 pts incarcerated at time of follow-up

who declined follow-up. Study staff could not administer assessments to incarcerated participants due to questions on recent substance use, which if reported and discovered by prison guards, could negatively impact an inmate's stay. One participant was withdrawn from the study due to misconduct and staff safety concerns. Four participants died prior to their 18-month follow-up.

DISCUSSION

The multipronged recruitment and retention plan described here proved to be efficient and cost effective. The initial recruitment goal was met 13 months ahead of schedule. The resulting cost savings in study personnel time were significant and allowed for sample

size expansion. Retention rates have exceeded 90 % out to 18-months follow-up. With regard to costs for recruitment and follow-up activities, total branding of study materials approximated US\$3 per enrolled participant; incentive costs were up to US\$150 per participant; and personnel resources was one full-time employee.

The recruited sample was largely representative of the SF-VAMC substance abuse treatment clinics, with most differences likely due to differences in reported measurement categories. Study recruitment (250 participants in 18 months) was more efficient than prior research in the same medical center and clinics (162 participants recruited in a 33-month period) [34]. Comparable in terms of level of cash incentive and follow-up involvement, the current study had broader inclusion criteria (i.e., any drug of abuse, open

regarding motivation to change), provided study-branded materials to build identity and facilitate snowball recruitment, and maintained an onsite presence within the treating clinic.

The target population was ethnically diverse, with limited education, and largely unemployed—a “complex population” in many respects—that necessitated direct outreach and rapport building for engagement. While other studies have utilized television advertising for mass media recruitment at substantial cost, given the current study’s single-site location and specific focus on clients in substance abuse treatment, more focused/local media messaging was implemented and included free study advertising via clinic monitors in the patient waiting areas. Erikson et al. found direct media to be the most effective and inexpensive (free) strategy to recruit a selective patient sample of 40 military veterans with Gulf War illness [17], yet direct mailing was not feasible here given privacy concerns around patient’s drug treatment status. Instead, research staff gave brief presentations and provided clinicians with platinum cards and silicon bracelets to distribute for patient referrals. Similar in size and weight of a credit card, with the study contact information printed on it, the cards used in this study encouraged patients to take charge of their total health and were modeled after the California tobacco cessation quitline cards, found to increase clinician referrals [36]. The *Total Health* intervention was nearly universally relevant for patients in the substance abuse treatment clinics so wide distribution was encouraged. Further, the cards were designed for keeping in one’s wallet to serve as a reminder with study contact information for follow-up.

A US\$25 incentive was provided for participants’ time at each follow-up, with the option of disbursement in the form of a more restrictive gift card instead of cash. Institutional Review Boards may limit cash incentives to prevent potential coercion for study participation, particularly with vulnerable groups such as individuals with recent history of substance abuse. Notably, the study-branded items, which served both as recruitment and retention functions, seemed equally valuable and, consistent with prior research [28, 26], appeared to reinforce participants’ bonds with the research study. Study items can be particularly meaningful when tailored to the population, such as the military green and black silicone wristbands and dog tags designed for our veteran sample. Branding brought positive attention and interest to the target population, fostered camaraderie among those in substance abuse treatment, and carried meaning over time, representing a goal and/or effort to work on health and continued sobriety. As one participant expressed,

The dog tags help me when I’m on the streets—when I look down and see the tag, I don’t use; it’s a constant reminder. The dog tag is something to fight for and show others who we really are, not who we were—we are

veterans. We’ve cleaned up. I’m proud to wear it.—Marine Corps veteran, age 62, recovering from crack-cocaine abuse

Although data were not collected on which study-branded item was the most effective, the study bracelets seemed to be the most popular item with participants requesting additional bracelets and wearing them still at the 18-month assessment.

Research participation also may be driven by altruism, with scientific study viewed as important and ethical [37]. This was evident in participants’ expressed interest and pride in participating to potentially help fellow veterans and to give back to the VHA. A prior study examining motivations for participating in clinical trials reported veterans were more motivated by altruism, and less motivated by financial compensation compared to nonveterans [38]. Camaraderie also contributed to snowball referrals whereby enrolled participants walked fellow veterans to the onsite study office.

Recruitment occurred across multiple clinical sites. The drug and alcohol treatment outpatient group was the largest patient site and yielded the most recruits, while the clinics with the greatest recruitment success, in terms of percentage of possible participants enrolled, were the opioid replacement clinic (53 %) and day hospital (46 %). The study research office was located within the opioid replacement clinic, adjacent to two physician offices. Study staff was easy to approach, familiar, and well connected with the clinical team. Further, nurses at the dispensing service of the opioid replacement clinic were engaged to distribute study information letters to patients when they dosed, a strategy implemented in recruitment month 9 to reach patients who may not have heard of the study (letters were not mailed in order to protect patient privacy). With the other clinics, given the large number of providers and less frequent appointments, the dear patient letters proved too time intensive and burdensome to implement.

A dedicated study staff member led most of the participant outreach and retention tasks. This individual fostered rapport with demonstrated respect and humanistic values. Others have emphasized positive staff interactions as crucial for creating value for participants and increasing engagement and retention rates [17, 26]. In a clinical trial working with HIV-infected patients and facing similar privacy concerns, Morse et al. noted flexibility increased recruitment and retention rates [24]. In the current trial, to maximize scheduling and enable informal reminders of appointments, study staff maintained flexible hours and an open-door policy, and scheduled study assessments around medical appointments to ease cost and travel barriers.

Though exceedingly helpful for engaging and retaining participant contact, the open-door policy was, at times, misused. In the most challenging case, a participant arrived at the clinic intoxicated, without an appointment, and became aggressive with study

staff. Having the study office located within an active clinic, however, proved incredibly helpful in this instance, and in others, for gaining support and response from the clinical team. Working with a high-risk clinical population, study staff at times requested evaluation of a patient by a clinical team member and/or walked participants over to be seen by the hospital's emergency service.

The study-branded items were approved by the IRB, and participants had the option of refusing them. There was one instance where study staff received a call from an emergency medical technician stating a person was found wearing the silicone bracelet with the study phone number on it who was inebriated and would not provide his name. Study staff explained that the bands were for a health study and did not give out any further information due to privacy concerns.

With a multipronged recruitment and retention plan, the current study was highly successful in engaging at-risk veterans into a trial on multiple risk behavior change. The plan was time and cost effective and allowed for sample size expansion during a period of budgetary cuts in federal grant funding. If anything, recruitment may have been too successful, particularly at study start. Research staff, however, wanted to be responsive to interest and not risk losing patients with a waiting list. The result was a sizeable bubble of participants to assess and follow-up at the major study time points. In hindsight, and as a learning point for future research efforts, it would have been better for workload balance to slow enrollment at study start and to have implemented recruitment efforts in more strategic waves rather than largely simultaneously.

Realizing that no one retention method was going to reach everyone, outreach was a multistep-staggered process. If the participant indicated the three best ways to reach him or her on the contact form, study staff began with those methods. If the indicated methods were not recorded or if the attempts were unsuccessful, staff generally began outreach by calling personal phone numbers, then calling secondary contacts or indicated programs, then sending an e-mail and then by mailing a letter. Calling personal numbers was the most direct and time-efficient method as appointments could be scheduled during the initial outreach attempt if the participant answered. In rarer cases, if a participant was difficult to reach, staff would identify upcoming medical appointments for participants and try to meet them in the treating clinic. If a particular collateral was helpful, this was documented and was used for future attempts. Staff attended two events solely for retention outreach; while staff saw some study participants at these events, they did not connect with the participants that were overdue for follow-up. Our approach did not allow for identification of what was effective, other than direct calls, it was unclear why participants called us back or dropped in to schedule/complete an assessment. While this is a limitation, having this tailored multi-pronged approach maximized our retention.

Participants were not surveyed on the specific strategy or strategies that led to their recruitment or what factors contributed to their being retained in the study. While this could perhaps be a useful inquiry in future studies, it would still be difficult to measure within a multipronged approach since several strategies can affect an individual's decision to participate. As a package, study strategies, with a focus on branding, networking, and presence, were supportive and complementary for rapport building with participants and clinicians and served to effectively integrate the research trial into the existing clinical service. Retention in the study was high, and it is worth noting the uniqueness of the SF-VAMC population. Specifically, veterans involved in the VHA are generally less transient and more involved in an existing infrastructure than those with substance use problems who are not involved in a VHA system. It is also worth noting that the inclusion criteria, which required that participants had completed at least 1 week of treatment and that participants planned to reside in the SF area for the next 18 months, may have contributed to the high retention rates, meaning the enrolled participants were people who remained engaged in an intensive period of substance use treatment. Despite these requirements, however, 34 participants (13.6 %) relocated out of the Bay Area at least once during the 18-month follow-up.

This research shows that it is possible to successfully engage veterans with substance abuse disorders into a wellness multiple health behavior change intervention. With encouraged consideration of the target population at hand, the lessons learned here may aid efforts to evaluate other health promotion initiatives.

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Ethical standards and informed consent: All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

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