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Recruitment methods for survey research: Findings from the Mid-South Clinical Data Research Network

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ABSTRACT

Purpose: The objective of this study was to report survey response rates and demographic characteristics of eight recruitment approaches to determine acceptability and effectiveness of large-scale patient recruitment among various populations.

Methods: We conducted a cross sectional analysis of survey data from two large cohorts. Patients were recruited from the Mid-South Clinical Data Research Network using clinic-based recruitment, research registries, and mail, phone, and email approaches. Response rates are reported as patients who consented for the survey divided by the number of eligible patients approached.

Results: We contacted more than 90,000 patients and 13,197 patients completed surveys. Median age was 56.3 years (IQR 40.9, 67.4). Racial/ethnic distribution was 84.1% White, non-Hispanic; 9.9% Black, non-Hispanic; 1.8% Hispanic; and 4.0% other, non-Hispanic. Face-to-face recruitment had the highest response rate of 94.3%, followed by participants who "opted-in" to a registry (76%). The lowest response rate was for unsolicited emails from the clinic (6.1%). Face-to-face recruitment enrolled a higher percentage of participants who self-identified as Black, non-Hispanic compared to other approaches (18.6% face-to-face vs. 8.4% for email).

Conclusions: Technology-enabled recruitment approaches such as registries and emails are effective for recruiting but may yield less racial/ethnic diversity compared to traditional, more time-intensive approaches.

1. Introduction

With new health information technologies, researchers now have an unprecedented opportunity to identify cohorts of patients with specific health conditions from large datasets, and to recruit these patients into pragmatic trials [1]. Developing methods to engage a broad range of potential research participants from diverse backgrounds is a critical component to the conduct of these trials [2–4]. Several strategies have been developed to improve recruitment for clinical trials, including increasing patient contacts, maximizing convenience for participants, developing effective recruitment monitoring systems, using incentives, and emphasizing interpersonal relationships between researchers and participants [5–7]. These recruitment methods often require multiple contacts from researchers (e.g., in-person, telephone, email), and the most successful recruitment strategies are often the most time-intensive [8–10]. Limited data are available to guide researchers' decision-

Abbreviations: PCORI, Patient-Centered Outcomes Research Institute; CDRN, Clinical Data Research Network; VUMC, Vanderbilt University Medical Center; VHAN, Vanderbilt Healthcare Affiliated Network; TN, Tennessee; EHR, electronic health record; CHD, coronary heart disease; URL, uniform resource locator; BMI, body mass index; IQR, inter-quartile range

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making about whether to utilize large-scale approaches with low response rates, or more time-intensive approaches with potentially higher response rates.

In addition, researchers are left without quantitative guidance as to the sociodemographic diversity that can be expected from various recruitment approaches. This is especially pertinent for researchers attempting to recruit participants from a range of economic, educational, and racial/ethnic strata [11,12]. The expected sociodemographic diversity among research participants for any given recruitment approach is also relevant when considering potential selection bias, highlighting the importance of recruitment strategies that maximize generalizability of research findings [13–17].

The purpose of the current report is to provide researchers with guidance to support effective and equitable recruitment by describing the response rate of eight recruitment approaches including face-to-face, mail, telephone, and several electronic recruitment methods. A secondary aim is to provide pragmatic guidance regarding sociodemographic diversity that could be expected from each recruitment approach. Because our sample included a large sample from multiple geographic regions, these data will also have findings that are generalizable to large recruitment efforts across the country.

2. Materials and methods

2.1. Setting and population

This study took place at three health networks from the Patient Centered Outcomes Research Institute (PCORI)-funded Mid-South Clinical Data Research Network (CDRN). The Mid-South CDRN integrates a clinical data infrastructure across the United States, consisting of: (1) Vanderbilt University Medical Center (VUMC) partnering with Meharry Medical College, (2) the Vanderbilt Healthcare Affiliated Network (VHAN), (3) Greenway Health, and (4) the Carolinas Collaborative, a consortium of 4 academic health systems and multiple community health systems across North Carolina and South Carolina [18]. This study recruited participants from Vanderbilt, VHAN, and Greenway. Vanderbilt University Medical Center is a tertiary care medical center in Nashville, TN that uses a comprehensive electronic health record (EHR). The VHAN is a clinically integrated network with an estimated reach of over 3 million patients in the Mid-South area. Chartered by the state of Tennessee, VHAN is composed of seven health systems that include over 40 hospitals and 400 ambulatory practices. Greenway provides integrated EHR and practice management software and services to over 2000 ambulatory care practices across the country.

As a part of the Phase I CDRN, two cohorts of patients were identified to represent common clinical conditions. The healthy weight cohort was developed to track the development of obesity and its associated co-morbidities. The coronary heart disease (CHD) cohort was developed to track patients with coronary artery disease. These cohorts were identified based on inclusion criteria (Appendix A) and structured data available in the EHR. A sample of potentially eligible patients was contacted to complete a survey, which included assessment of demographic information, psychosocial determinants of health, health literacy, health behaviors, and willingness to participate in subsequent research. Importantly, one of the eligibility criteria was that patients had to have had contact (i.e., clinic visit) with the healthcare system at least once in the preceding two years. We attempted to reach a representative sample of our potentially eligible participants by using a comprehensive set of communication strategies, which are detailed below.

2.2. Recruitment and data collection procedures

The healthy weight and CHD cohorts used eight recruitment approaches, the details of which are listed in Table 1. These included a face-to-face approach, phone calls, mailed surveys, a mailed letter with

Table 1
Description of recruitment methods.

Approach	Description	Follow-up method	Location	Cohort
In Clinic Recruitment				
Face-to-face	Research assistants approached potentially eligible participants in clinic waiting rooms.	Occasional emails or phone calls reminders were used if requested by participant or if survey was incomplete	Vanderbilt primary care, cardiology clinics, community clinics	HW and CHD
Mailed				
Letter with URL	Mailed potentially eligible participants a post-card with a URL link to survey	Phone call follow-up or re-mailed post-card as needed.	Patients from Vanderbilt cardiology practices including community-based satellite clinics.	CHD
Mailed survey	Mailed a paper copy of survey	Phone call follow-up or re-mailed post-card as needed.	Patients from Vanderbilt cardiology practices including community-based satellite clinics.	CHD
Phone				
Phone calls	Called potentially eligible participants.	Reminder calls, in person recruitment, or email follow-up based on participant preference if first call successful.	Patients from Vanderbilt cardiology practices including community-based satellite clinics.	CHD
Email				
Email from researcher	Potentially eligible participants emailed directly from research team and clinic director.	Three reminder emails sent over 30 days[b]	Patients from a single community-based clinic in the VHAN	HW
Email from physician	Potentially eligible participants emailed directly by physician.	Only initial email with no follow-up	7 clinics from 5 states. (Greenway Health)	HW
Two step screening[a]	Email directly from researchers to potentially eligible participants who had previously agreed to be contacted for research	Three reminder emails sent over 30 days[b]	Vanderbilt patients with a registered email address	HW and CHD
Research registry	Web-based research registry of participants who are actively interested in research	Three reminder emails sent over 30 days[b]	Patients from three surrounding states and home state of Institution	HW

CHD: coronary heart disease cohort; HW: Healthy Weight Cohort; VHAN: Vanderbilt Health Affiliated Network

[a] Eligibility was not assessed prior to sending preliminary email.

[b] Reminder emails were sent at day 7, 14, and 30.