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E-mail invitations to general practitioners were as effective as postal invitations and were more efficient

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Abstract

Objective: To evaluate which of two invitation methods, e-mail or post, was most effective at recruiting general practitioners (GPs) to an online trial.

Study Design and Setting: Randomized controlled trial. Participants were GPs in Scotland, United Kingdom.

Results: Two hundred and seventy GPs were recruited. Using e-mail did not improve recruitment (risk difference = 0.7% [95% confidence interval −2.7% to 4.1%]). E-mail was, however, simpler to use and cheaper, costing £3.20 per recruit compared with £15.69 for postal invitations. Reminders increased recruitment by around 4% for each reminder sent for both invitation methods.

Conclusions: In the Scottish context, inviting GPs to take part in an online trial by e-mail does not adversely affect recruitment and is logistically easier and cheaper than using postal invitations.

Keywords: Recruitment; Randomized controlled trials; E-mail; Postal; Reminders; Primary care

1. Introduction

Randomized controlled trials are the gold standard for the evaluation of the effectiveness and safety of health care interventions, particularly because they protect against selection bias [1]. However, recruiting clinicians and patients to randomized trials can be extremely difficult [2]. Trialists use many interventions to improve recruitment [3,4], but evidence regarding the likely effect of these interventions is often unclear.

Primary care studies face particular challenges linked to the characteristics of primary care professionals and patients and the dispersal of the primary care setting [5,6]. The Cochrane review of interventions to improve recruitment has a planned subgroup analysis comparing primary and secondary care recruitment but has not found enough primary care studies to perform the analysis, despite including a total of 45 studies [3]. More rigorous evaluations of recruitment interventions are needed, especially in primary care.

The web-based intervention modeling experiment (WIME) study [7] (ClinicalTrials.gov number NCT01206738) has the primary aim of running a WIME to develop and evaluate theory-based interventions to improve antibiotic prescribing for upper respiratory tract infections in primary care. It also has an embedded trial evaluating which of two invitation methods, e-mail or post, is most effective at recruiting general practitioners (GPs) to the study, which is the subject of this article.

2. Intervention modeling experiments

The Medical Research Council's framework for developing and evaluating complex interventions has argued

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What is new?

- Using e-mail to invite general practitioners (GPs) to take part in an online trial by e-mail did not adversely affect recruitment and was logistically easier and cheaper than using postal invitations.
- E-mail has not been evaluated as a trial invitation method although studies offering potential participants electronic ways to respond to surveys have found that these options had a lower response rate than standard postal questionnaires. In the present study, using e-mail did not improve recruitment (risk difference = 0.7% [95% confidence interval −2.7% to 4.1%]). It was, however, simpler to use and cheaper.
- Reminders were effective and increased recruitment by around 4% for each reminder sent for both invitation methods.
- Trialists inviting GPs to take part in a trial should consider e-mail as an invitation method.

for more and better theoretical and exploratory work before a trial as a means of improving intervention development [8]. The use of intervention modeling experiments (IMEs) for interventions that aim to change behavior is one approach to doing exploratory work [9]. In an IME, participants are presented with several clinical scenarios and have to make a decision in response to each. Key elements of the intervention are delivered to participants in a manner that approximates the real world but the measured trial outcome is generally an interim outcome, a proxy for the clinical behaviour of interest. The aim is to learn more about the intervention and its effect prior to entering it into a full-scale trial. To date IMEs have been paper-based [9,10], but this may limit their efficiency, acceptability, and ecological validity. WIMEs have the potential to provide much richer simulations of clinical encounters and allow measurement of key process variables, such as time to make a decision.

WIME aimed to recruit 250 GPs. The standard approach to invite GPs to take part in research is to use postal invitations, but it was not clear whether GPs would be more likely to respond to a postal or an e-mail invitation. E-mail is increasingly used to contact GPs in Scotland about research (e.g., by the Scottish Primary Care Research Network [SPCRN]; www.sspc.ac.uk/spcrn/) and if successful as a recruitment method, e-mail would offer the advantages of being simple and less resource intense. We therefore embedded a methodological study of how best to contact GPs by randomly allocating GPs to one of postal or e-mail invitation.

3. Methods

GPs from 12 Scottish Health Boards were identified by SPCRN using a combination of publicly available information provided by Information Services Division (ISD) Scotland (http://www.isdscotland.org/isd/3793.html) and restricted information held on the NHS.net database, the latter to provide e-mail addresses. The study statistician (G.M.) generated a list of random numbers and participant IDs broken down into mailing blocks, which SPCRN used to randomly allocate GPs to receive either an e-mail or a postal invitation on a 1:1 basis without stratification. Blocks of invitations were sent out until the number of GPs recruited met or exceeded the required sample size of 250 GPs. All research staff, except SPCRN staff, were blind to GP recruitment allocation until the study database was locked.

GPs receiving a postal invitation received a one-page letter and a two-page information sheet. Together with general information, the letter contained a uniform resource locator (URL) to the WIME system. GPs receiving an e-mail invitation received an e-mail containing the same text and URL as in the paper letter and a link to the same two-page information sheet. We sent two reminders (each a re-mailing of the full invitation) to nonresponders, the first at two weeks, the second at four weeks, using the same contact method as used for the initial invitation. Staff sending out the invitations and reminders also recorded how long they spent on these tasks.

GPs were offered a £20 gift voucher from a choice of outlets (Amazon, Argos, Boots, iTunes, Love2Shop, Marks & Spencer, or Starbucks) as an incentive to participate. GPs could also opt to receive no voucher. All the vouchers were sent out by post because only two of the seven vouchers could be sent electronically and a single system simplified our procedures. A diagram of participant flow is given in Fig. 1.

4. Approvals

WIME was approved by the Tayside Committee on Medical Research Ethics A, Research Ethics Committee reference 10/S1401/54 and received NHS R&D approval from the 12 National Health Service (NHS) Health Boards involved.

5. Analysis

The number recruited for each of e-mail and postal invitations was calculated using an intention-to-treat analysis, with undelivered e-mails and postal letters being classed as "GP not recruited." Dichotomous outcomes were compared using Fisher's exact test, voucher choices were compared using Pearson's chi-square, and mean number of years qualified was compared using a *t*-test, all two-sided and at the 5% level of significance. PASW Statistics 18 (SPSS, Inc., USA) was used for analysis. Cost and time data are presented descriptively.