SWAT 248: Optimising the timing of a reminder text message to maximise uptake to BEST4 screening trial capsule sponge test appointment

Objective of this SWAT
This SWAT will evaluate the impact of sending reminder text message at different intervals compared to the invitation text message or available appointments (e.g. a few days after the invitation vs a few days before the appointments). It may also test the best days of the week or times of the day for sending the text messages.

The primary objectives are to evaluate (a) BEST4 Screening Trial appointment booking by timing of the reminder, following a reminder text message to book a capsule sponge test appointment; and (b) appointment attendance by timing of the reminder, following a reminder text message to book a capsule sponge test appointment.

An exploratory objective is to evaluate whether results to evaluate the primary objectives may differ by subgroups defined by demographic, clinical or psychological factors.

Additional SWAT Details
Primary Study Area: Recruitment
Secondary Study Area: Barriers and facilitators; EDI;I ncentives and engagement; Prompts
Who does the SWAT intervention target: Participants
Estimated resources needed to conduct the SWAT: Low
Estimated cost of the SWAT (£):

Findings from Implementation of this SWAT
Reference(s) to publications of these findings:
Primary Outcome Findings:
Cost:

Background
Recruiting participants to trials can be challenging with nearly 50% of trials extending recruitment or failing to meet targets.[1-3] Poor recruitment risks underpowered trials, delaying or missing clinically meaningful findings, raising ethical concerns, and increasing costs.

The BEST4 Platform is adopting a novel, cost-effective recruitment strategy by using text messages to invite potential participants to enrol online in the Heartburn Health bioresource. This approach will allow us to cost-effectively invite sufficient people to the Platform with broad eligibility criteria to ensure inclusivity. However, patient and public involvement (PPI) contributors have highlighted potential barriers, including trust in the text message, remembering to respond, and understanding the information. Pilot data suggests uptake may be lower than expected.

A randomly selected subset of Heartburn Health participants will be offered a capsule sponge test as part of the BEST4 Screening Trial, which aims to assess whether screening with this test can reduce oesophageal cancer mortality. Achieving high uptake is essential for trial power. Incorporating wording that targets certain behaviour change techniques and modifying the timing of the invitations and reminders to ease friction in the booking process may encourage uptake of the test and ensure the trial can achieve its aims.

We would like to optimise our invitation and enrolment strategy using Studies Within a Trial (SWATs). A SWAT is an established methodology of embedding an evaluation of an intervention in a host trial to improve some part of the trial process.[4] We will use an adaptive trial design [4,5] and interventions will be informed by the Theoretical Domains Framework and developed using behaviour change techniques.[6-8] By running sequential SWATs, we can continuously test and optimise our recruitment strategy, incorporating the most effective interventions over time.

Host Trial Population: Adults
Host Trial Condition Area: Gastrointestinal

Interventions and Comparators
Intervention 1: BEST4 invitation appointment reminder SMS sent at different intervals compared to the invitation SMS or available appointments
Intervention 2: BEST4 invitation appointment reminder SMS sent at different times of the day

Method for Allocating to Intervention or Comparator: Randomisation

Outcome Measures
Primary Outcomes: Proportion of people booking an appointment, in those offered a capsule sponge test and sent a reminder text message; proportion of people attending a capsule sponge appointment, in those offered a capsule sponge test and sent a reminder text message

Secondary Outcomes:

Analysis Plans
The interventions will be compared using the “Response surface estimation” approach.

Each timing SWAT is designed to (1) ensure operational requirements are met (e.g. SMS are delivered in a timely fashion), while (2) generating data to help understand the effect of timing (both time of day and day of week) on engagement, and (3) maximising uptake to BEST4 booking.

Plan: An important difference between the timing and content SWATs is that we will always need to send multiple batches of invitations during several days of the week. For example, even if Thursday has the highest response rate to invitation text messages, capacity constraints mean that we will still need to send text messages on other days in order to send the complete list of invitation text messages. Therefore, analysis will focus on measuring effects of time of day and day of week on engagement, in order to help maximise uptake to BEST4 booking given operational constraints. That is, we aim to estimate the “response surface” of our endpoints as a function of time of day, day of week, and other timing factors.

Sample size: Sample size is fixed by operational requirements. Analysis of each timing intervention will use randomisation between timing strategies to learn about causal effects. For individual randomisation, timing intervention options for batches within each list will be based on judgement by the BEST4 team, primarily based on operational requirements, and by considering data to date. For cluster-randomised evaluations, options for timing between clusters will also be based on judgement based on data accrued and operational requirements.

Exploratory analysis: Analysis will continually explore the effect of day of week and time of day across all SWATs, by fitting statistical models as data are generated.

Cost estimation: Costs per intervention strategy will also be estimated. Primary and secondary outcomes will be expressed in financial terms, as cost per invite divided by the outcome variable.

Possible Problems in Implementing This SWAT
Some participants (e.g., those with low technological literacy, first languages other than those used for the text messages) may engage differently with the text message interventions, affecting uptake. Also, technical delivery issues (e.g., delivery failures, spam filters) may occur and affect the results (e.g. messages not received or opened).

References Cited in This Outline
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4. Treweek S, et al. Trial Forge Guidance 1: What is a Study Within A Trial (SWAT)? Trials 2018; 19: 139.

5. Pallmann P, et al. Adaptive designs in clinical trials: Why use them, and how to run and report them. BMC Medicine 2018; 16: 29.

6. Gillies K, et al. Systematic Techniques to Enhance rEtention in Randomised controlled trials: The STEER study protocol. Trials 2018; 19: 197.

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8. Cane J, O'Connor D, Michie S. Validation of the Theoretical Domains Framework for Use in Behaviour Change and Implementation Research. Implementation Science 2012; 7: 37.

References to This SWAT

Source of This SWAT

People to show as the source of this idea: Professor Rebecca Fitzgerald, Dr Emma Lidington, Dr Elisavet Moschopoulou, Professor Jo Waller, Professor Peter Sasieni, Dr Shyma Jundi, Dr Adam Brentnall, Wayne Tam, Nicholas Cristofani-Wykes, Abdoulie Gibba, Cancer Research UK (CRUK) Cancer Prevention Trials Unit (CPTU) - Queen Mary University of London
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Date of idea: 27/03/2025
Revisions made by:
Date of revisions: