SWAT 253: Evaluating the effectiveness of follow-up strategy modalities on questionnaire response rates in mechanically ventilated ICU survivors: a SWAT within the VOICE study

Objective of this SWAT
The primary objective is to compare the effectiveness of email, SMS, and voice call as follow-up strategies on response rate to the 8-week VHI-10 and V-RQOL questionnaires among intensive care unit (ICU) survivors.
The secondary objectives are to assess
• Efficiency: Time to response (days from first follow-up attempt to completed questionnaires); number of contact attempts required.
• Feasibility & Process: Time from ICU discharge to consent completion; reasons for delay in obtaining consent.
• Acceptability: Participant perception with follow-up experience.
• Economic: Cost per completed questionnaire and incremental cost per additional completed response by modality (micro-costing).
• Equity & Subgroups (exploratory): Differences in effectiveness by age, sex, occupation, ICU length of stay, ventilation duration, comorbidity burden.

These SWAT [1] outcomes are intended to be analysed and reported alongside the host study (VOICE) outcomes to inform both the clinical question (voice disorder burden) and the methodological question (best follow-up strategy).

Additional SWAT Details
Primary Study Area: Recruitment & Retention
Secondary Study Area: Barriers and facilitators
Who does the SWAT intervention target: Participants; Patients; Researchers
Estimated resources needed to conduct the SWAT: Medium
Estimated cost of the SWAT (£): nil

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

Background
The VOICE study investigates post-extubation voice disorders among adult ICU survivors using the Voice Handicap Index-10 (VHI-10) [1] and Voice-Related Quality of Life (V-RQOL) [2] at ICU discharge and 8 weeks post-extubation. High follow-up response is essential to internal validity, because incomplete data introduces attrition bias and limit interpretation of patient-reported outcomes. However, follow-up response rates in ICU survivorship and other longitudinal studies are often suboptimal, with many reporting attrition rates of 30–50% at 3–12 months. These challenges underscore the importance of developing efficient and acceptable follow-up strategies to ensure representative outcomes and reduce risk of bias.

The PRioRiTy programme (Prioritising Recruitment and Retention in Randomised Trials) has identified important unanswered questions about improving recruitment (PRioRiTy I [3]) and retention (PRioRiTy II [4]) and encourages evaluation of practical, patient-centred solutions. Notably, PRioRiTy II Question 7 highlights the uncertainty about which modes of data collection (postal, online, telephone) are most acceptable, valid, and cost-effective for follow-up;[5] the focus of this SWAT.

Validated instruments such as the VHI-10 [1] and the V-RQOL [2] have been used in the VOICE study at follow-up. There is mixed but growing evidence that small variations in a follow-up strategy (e.g., SMS reminders, email prompts, and telephone contact),[6-9] can influence questionnaire return, timeliness, and cost. Systematic reviews of retention strategies emphasise

the need for embedded evaluations, such as SWATs, to build a robust and generalisable evidence base across trials.[10,11]

This SWAT aims to compare three follow-up modalities: email, SMS, and voice call; to determine which achieves the highest questionnaire completion rate within the follow-up window using the primary follow-up method. Participants will be allocated to one of these follow-up modalities based on documented participant communication preference at, or prior to, hospital discharge. This is a preference-based, pragmatic allocation to maximise acceptability in the post-ICU population. The SWAT also assesses efficiency, feasibility, acceptability, and cost to inform future ICU survivorship research and service models. Embedded in the VOICE study, this SWAT is designed to inform best practices for participant engagement in post-ICU follow-up research.

Host Trial Population: Adults
Host Trial Condition Area: ICU survivors

Interventions and Comparators
Intervention 1: Email - Initial secure email with links to VHI-10 and V-RQOL. Up to two reminder emails 24 hours apart, if incomplete.
Intervention 2: SMS - Initial SMS containing a secure survey link and brief purpose statement. Up to two SMS reminders 24 hours apart, if incomplete.
Intervention 3: Voice Call - Research staff telephone; offer telephone administration or guidance to complete online. Up to three call attempts at varied times/days; voicemail left when appropriate with callback details.

Method for Allocating to Intervention or Comparator: Participants are allocated to email, SMS, or voice call according to their documented communication preference at or before hospital discharge.

Outcome Measures
Primary Outcomes: Response rate at 8 weeks: Proportion of eligible participants who return both completed VHI-10 and V-RQOL within the follow-up window using the primary follow-up method.
Secondary Outcomes: Location of consent (ICU or Ward); Time to consent (days from extubation to consent); Time to response (days from first contact attempt to completed follow up questionnaires); Number of contact attempts required for follow-up response; Proportion requiring cross-over to another modality; Proportion of partially completed questionnaires; Participant satisfaction (5-point Likert items); and Cost per completed questionnaire (micro-costing of staff time and communication resources) and incremental cost per additional completed response between modalities.
Exploratory subgroup differences (age, sex, LOS, ventilation duration, occupation) on follow-up rates will also be assessed.

Definitions
Response rate: numerator = participants who have completed VHI-10 instruments within the follow-up window (excluding those who cross-over to another modality); denominator = eligible participants due for 8-week follow-up (excluding withdrawals and deceased prior to follow-up).
Time to response: days from timestamp of first follow-up contact attempt to timestamp of instrument completion. Non-responders censored at 14 days after first attempt or at end of pre-specified follow-up window.

Analysis Plans
Response rate: Comparison of modalities using multivariable logistic regression and report adjusted odds ratios with 95% CIs; adjust for pre-specified prognostic factors (e.g., age, sex, length of stay, ventilation duration).
The following analyses will be done for the secondary outcomes:
• Time-to-event: Kaplan–Meier curves and Cox proportional hazards models for time to response.
• Satisfaction: Ordinal logistic models; thematic content analysis for free-text (descriptive).

• Economic: Micro-costing of staff time, telephony, SMS/email delivery; incremental cost per additional completed questionnaire by arm.

Possible Problems in Implementing this SWAT

1. Preference-based allocation may confound comparisons, as differences may reflect participant characteristics rather than modality effectiveness.
2. Invalid or outdated contact information (emails, phone numbers).
3. Participant unavailability due to recovery, rehospitalization, or personal schedules.
4. Technical barriers (spam/junk emails, broken links, limited digital literacy).
5. Low response rates despite contact attempts.
6. Cross-over between modalities complicating analysis of effectiveness.
7. Privacy or confidentiality concerns with electronic/phone communication.
8. Staff burden for calls and reminders.
9. Data capture or system errors in REDCap or time-stamping.
10. Equity/representation issues (older adults, non-English speakers, lower socio-economic status (SES) may be less reachable).
11. External disruptions (hospital policy changes, staffing issues, pandemics).

References Cited in This Outline

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References to This SWAT

Source of This SWAT

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