

User experience of a person-centred, digitally enabled ambulatory model of care for the management of malignant pleural effusion



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INSPIRED RESEARCHERS
Northern Health

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Introduction

Malignant pleural effusion (MPE) is fluid accumulation between the lung and chest wall due to advanced cancer. MPE causes debilitating symptoms and is associated with poor prognosis. Uncontrolled symptoms are a frequent cause of hospitalisation and ongoing management is associated with a high burden of outpatient appointments.

Objective

To evaluate the feasibility of an ambulatory model of care (Specialist Ambulatory Pleural Service [SAPS]) that leverages community nursing support and innovative digital health solutions; including teleultrasound (real-time remote ultrasound), telehealth and remote monitoring to capture patient-reported outcome measures (Figure 1). This model allows individuals to receive expert management **at home**; *preventing hospitalisation, unnecessary emergency department presentations and reducing the need for outpatient visits.*

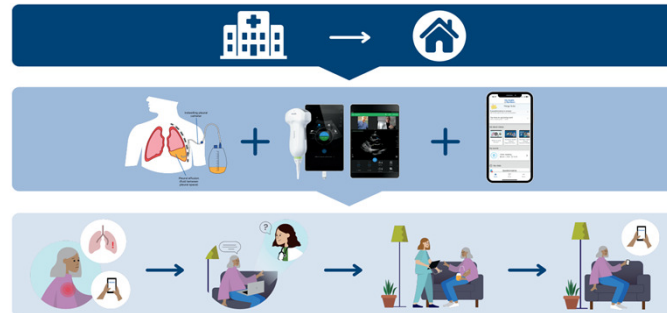


Figure 1: Schematic of the SAPS model of care.

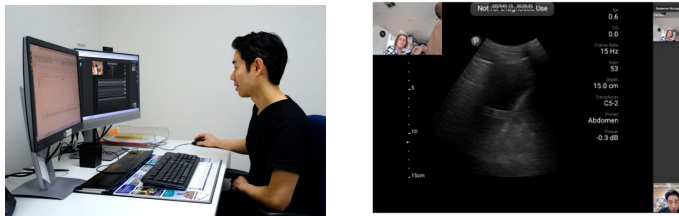


Figure 2: Left: telehealth consultation with physician. Right: tele-ultrasound user interface.

Methods

This component of a six-part, prospective mixed-methods study assesses usability and user experience of the SAPS model of care. At 2 weeks post-enrolment, the SAPS Nurse conducts a home visit facilitating a telehealth and tele-ultrasound consultation with a supervising Respiratory Physician (Figure 2). Monthly visits continue up to 6 months. Quantitative data was captured and analysed utilising the Health-ITUES framework at the final home visit. Trial registration: ACTRN12623000063617.

Results

Participants were recruited from September 2023 to July 2025. N=47 have completed the 6-month follow-up to date. Survey responses were available from 32 participants; responses to each item are displayed in Figure 3. Mean domain scores were high across all areas: Impact 4.79 (95% CI 4.65–4.94), Usefulness 4.62 (4.36–4.88), Ease of use 4.60 (4.42–4.78), and User Control 4.50 (4.26–4.74).

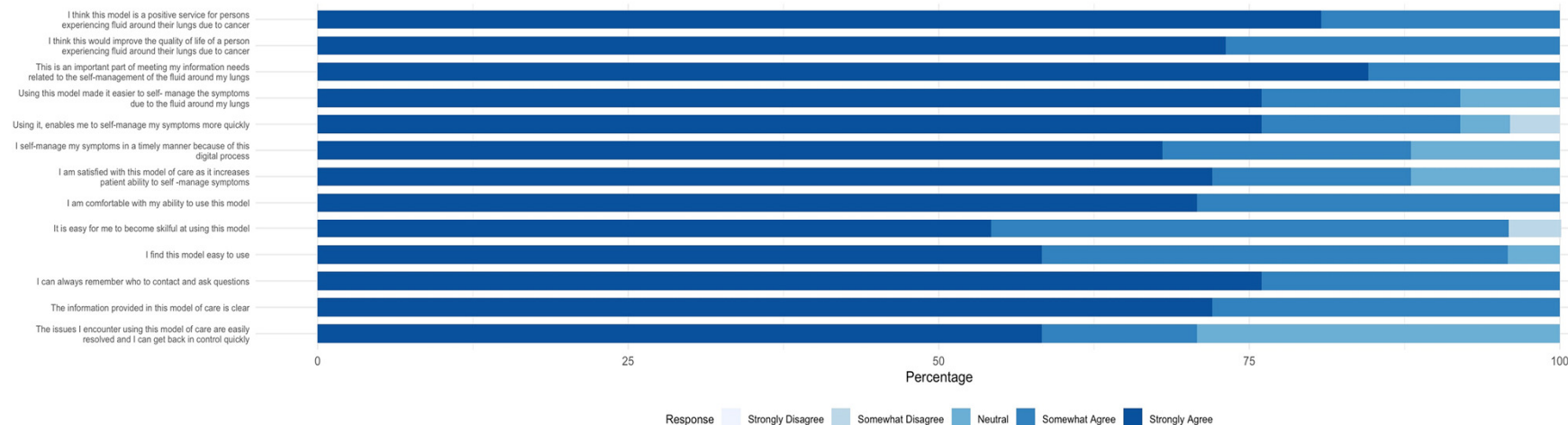


Figure 3: Aggregated participant responses to the health-ITUES questionnaire. Domains included: 1) Impact of SAPS digital model of care, 2) Perceived usefulness of SAPS digital model of care, 3) Perceived ease of use of SAPS digital model of care and 4) User control in SAPS digitally enabled model of care.

Conclusion: Embedding digital solutions to the SAPS model of care was associated with high patient satisfaction among individuals with MPE. Participants agreed that the model was impactful, useful and easy to use.