

# Usability Testing of the Patient Reported Outcomes-Informed Symptom Management System: a personalized mHealth Program



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## Background

Cancer patients and their caregivers often receive education about ostomy care during hospital stay for ostomy surgery. However, most patients struggle with ostomy care after being discharged home, causing complications that are preventable with appropriate self-/family-management:

- ❖ Dehydration
- ❖ Peristomal skin breakdown
- ❖ ER visits
- ❖ Readmissions

This study aimed to test the usability of our **Patient Reported Outcome-Informed Symptom Management System (PRISMS)**, an innovative web-based mHealth program that helps complications and symptoms self-management during transition from in-patient professional care to post-treatment self-care at home.

## Study Design



- ❖ **Phase I:**
  - ❖ healthcare providers
  - ❖ two rounds of focus groups



- ❖ **Phase II:**
  - ❖ cancer patients with newly created ostomies and their caregivers
  - ❖ usability testing in a research lab
  - ❖ SMI eye tracking glasses
  - ❖ qualitative Interview



## Usability Testing Tasks

### Task I: Patient-Reported Outcomes (PRO) Survey

The screenshots show the PRISMS PRO survey interface. The first question is 'What color is your urine?' with a color scale from Clear to Dark. The second question is 'How tired, weak, or exhausted do you feel?' with a scale from 0 to 10. The third question is 'Are you using an ostomy belt?' with Yes/No radio buttons. The fourth question is 'Are you using a barrier ring?' with Yes/No radio buttons. Each question has a 'SUBMIT' button.

### Task II: Dashboard Navigation

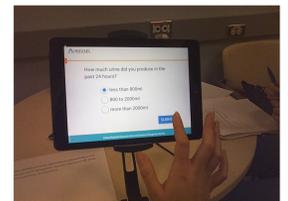
The screenshots show the PRISMS dashboard. The top navigation bar includes HOME, FEEDBACK, LEARN MORE, CONNECT, and RESOURCES. The main content area features a 'Welcome back!' message, 'Device Data' section with a bar chart for 'Your Daily Steps', and a 'Self-Care for Caregivers' section with various resource links like 'Overnight Drainage Bag Care' and 'Counting Techniques'.

### Task III: Watching Skills Training Videos

The screenshots show two skills training videos. The first is 'Changing the Pouch (Male)' showing a person demonstrating the process. The second is 'Meditation for Caregivers' showing a person in a meditative state with text overlays: 'Practice mindful breathing', 'Learn Diaphragmatic Breathing', and 'Meditation is a helpful way to focus after a long day.' Below the video are instructions: 'Make yourself comfortable', 'Close your eyes', and 'Follow my instruction.'

## Results

- ❖ Eight healthcare providers provided comments and feedback on the PRISMS contents and mode of delivery.
- ❖ Six patients and three caregivers participated in the lab usability testing.
- ❖ **Five categories of feedback** were identified from the analysis of the interviews:
  - ❖ Content
  - ❖ Navigation
  - ❖ Functionality
  - ❖ Appearance
  - ❖ Intervention implementation related



## Conclusion

- ❖ Based on stakeholders' feedback, we have comprehensively refined PRISMS and improved its functionality.
- ❖ We are conducting a **pilot randomized clinical trial to test the feasibility of PRISMS**, aiming to enhance personalized supportive care for cancer patients and their caregivers during the transition from clinical care to home care.
- ❖ Wound and Ostomy Care nurse interventionist leverages the embedded PRO survey and smart devices data to monitor the postoperative complications and symptoms and provider support based on patients' and their caregivers' care needs.