# Usability testing of the COMET (Clinical Outcome Measures Electronic Toolkit) mobile app for outcome measure data collection in individuals with lower limb amputation and clinicians

Shaghayegh Mirbaha 1; Toshiki Kobayashi 2; Sarah R. Chang 2; Jessica Garries 2; Jung Kim 2; Sander L. Hitzig 1; Amanda L. Mayo 1; Silvia Raschke 3; Adam K. Arabian 2; David A. Boone 2 1-St. John's Rehab Research Program, Sunnybrook Research Institute, Sunnybrook Health Sciences Centre, ON, Canada; 2-Orthocare Innovations, Edmonds, WA, USA; 3- British Columbia Institute of Technology, BC, Canada;

## Background

- Outcome measures are required for evidence-based clinical care in **prosthetics & orthotics (P&O)**.
- Paper-based outcome measures collection methods are time-consuming & more prone to error.
- The COMET (Clinical Outcome Measures Electronic **Toolkit) mobile App** was developed to facilitate the collection & measurement of performance-based & patient-reported outcomes in the P&O field.
- Conducting a formal systematic usability testing is essential to ensure the app meets the needs of both patients & clinicians in real-world settings.

## Objective

To evaluate the usability of the COMET mobile app among individuals with lower limb amputation (LLA) & clinicians to understand the user experience & improve the mobile app for increased clinical uptake.

## COMET App

• The COMET App allows clinicians, in collaboration with patients, to select & set order of outcome measures to complete (i.e., Timed Up & Go [TUG], Fall History, etc.).



 COMET scores & records outcome measures, which can be exported as PDF reports to include in medical records.

SCAN HERE **TO LEARN** MORE **ABOUT THE** COMET APP



Fore more information regarding this project, please email: sander.hitzig@sunnybrook.ca

## Methods

- Study Design: A mixed-methods approach was used, combining quantitative data & qualitative feedback.
- Participants & Sites: Included 15 patients with LLA & 9 clinicians (6 prosthetists & 3) **physiotherapists)** recruited from the Sunnybrook Health Sciences Centre.
- Data Collection & Analysis:
  - Quantitative data collected via in-session use of the COMET app & System Usability Scale (SUS) questionnaire & analyzed using descriptive statistics.
  - Qualitative data collected through focus groups & in-session user observations & analyzed using an **inductive thematic approach**.

Results					
	Group	Number	Age (Mean ± SD)	Amputation Type / Profession	Tech Proficiency
	Individuals with LLA	15	54 ± 17 years	13 transtibial, 1 transfemoral, 1 ankle disarticulation	13 intermediate /advanced, 2 novice
	Clinicians	9	42 ± 10 years	6 prosthetists, 3 physiotherapists	All intermediate or advanced

 Clinician & Patient COMET Ratings: The Mean SUS score for clinicians was 80 (Good to Acceptable) & 84 (Acceptable to Excellent) for patients.



#### FIGURE 1 - Frequency of Measures

#### FiGURE 2 - Clinician & Patient Ratings

## **Patients & Clinicians Feedback**

#### Individuals with LLA:

- paperless;

#### Clinicians

- reports.

- smoothly.

#### Shared Suggestions for Improvement

- - measures.

- users.

Funding provided by the American Orthotic & Prosthetic Association (AOPA) & Center for Orthotic & Prosthetic Learning (COPL).



Found the app easy to use.

Appreciated the efficiency & convenience of going

 Liked the simple & responsive grading scale for patient-reported outcome measures.

• Valued the ability to save & export results as PDF

 Felt confident administering performance-based measures on the iPad;

Reported that patients navigated the app

 Increase font size & contrast for readability Improve scrolling functionality in longer outcome

## Conclusions

• The COMET app has the potential to serve as a practical & easy-to-use digital tool to improve clinical workflow & the completion of outcome measures.

 The findings from the present study suggests strong **usability & acceptability** by clinicians & patients alike.

• A key limitation was the relatively small sample size & variety of outcome measures completed by different

 Our findings encourage future exploration & broader **application** of digital platforms such as COMET across diverse patient populations to inform & promote evidence-based practice globally.

ST. JOHN'S REHAB

### <u>FUNDING</u>