

TLC-Act: Development & Preliminary Analysis of a Drug Interaction Management Tool for Hospital Pharmacists



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Background

- Drug-drug interactions (DDI) cause adverse drug events that result in 2-3% of hospitalizations
- Clinical decision software systems (CDSS) are used by pharmacists to assist in identifying DDIs of clinical importance
- Our previous research suggests:
 - CDSS may provide suboptimal performance in managing DDIs clinically
 - Pharmacist concern regarding the discrepancy between CDSS rated level of DDI severity and recommended actions compared to common clinical practice

Objectives

- To develop a standardized DDI management tool for use by clinical and dispensary hospital pharmacists to aid in their decision making for managing DDIs
- To gather feedback on the developed DDI management tool regarding usability, feasibility, and utility in clinical practice

Methods

- Phase I: Development of DDI Management Tool (TLC-Act)**
 - Development of preliminary DDI management tool & pilot testing using example drug interactions
 - Expert panel review of preliminary tool & gathering of informal feedback to improve tool
- Phase II: Implementation of TLC-Act**
 - Educational presentations & promotional posters disseminated to study participants
 - Clinical implementation of finalized tool by study participants
- Phase III: Feedback Survey of TLC-Act**
 - Originally planned to survey all study participants to gather feedback for TLC-Act based on clinical use of the tool
 - Secondary to COVID-19 pandemic, survey timeline adjusted (only pharmacy residents surveyed to date)
 - Study participants: LMPs year 1 pharmacy residents & clinical/dispensary pharmacists employed at VGH/SPH/SMH
 - Ethics approval by the UBC Behavioural Research Ethics Board
 - Descriptive statistics of survey results

Results

Figure 1: Developed DDI Management Tool (TLC-Act)

Pharmacist Drug Interaction Management Tool (TLC-Act)

Patient MRN/Label (if available): _____

Assessment Date: _____ Pharmacist: _____ Patient Ward: _____

Drug Interaction Identified by CDSS (Clinical Decision Support System):

Drug A: _____ + Drug B: _____

Chronic use Acute or PRN use

Chronic use Acute or PRN use

Time & Onset of Effects	Points
<input type="checkbox"/> Unknown	0
<input type="checkbox"/> Delayed onset (weeks or longer)	1
<input type="checkbox"/> Acute onset (hours to days)	2

Level of Interaction Severity *	Points
<input type="checkbox"/> Minor (clinically irrelevant)	0
<input type="checkbox"/> Intermediate (moderate)	1
<input type="checkbox"/> Severe (major)	2
<input type="checkbox"/> Contraindicated (avoid combination)	3

Total Score: _____
(Sum of points from "T" and "L" sections)

* = as per CDSS severity rating

If above total score is **1 to 3 points**, assign additional letter grade to score:

Current Available Evidence	Letter
<input type="checkbox"/> Systematic review or meta-analysis	A
<input type="checkbox"/> Observational studies or case series or RCT	B
<input type="checkbox"/> Case reports	C
<input type="checkbox"/> In-vitro/PK or animal studies	D
<input type="checkbox"/> Theoretical interaction (based on mechanism)	E

Letter Grade: _____

Refer to back page for suggested management based on above assessment

ACTION

Document assessment & monitoring parameters in patient chart

Verbal communication with interdisciplinary care team (if applicable)

Educate patient regarding drug interaction (if applicable)

Final pharmacist intervention: _____

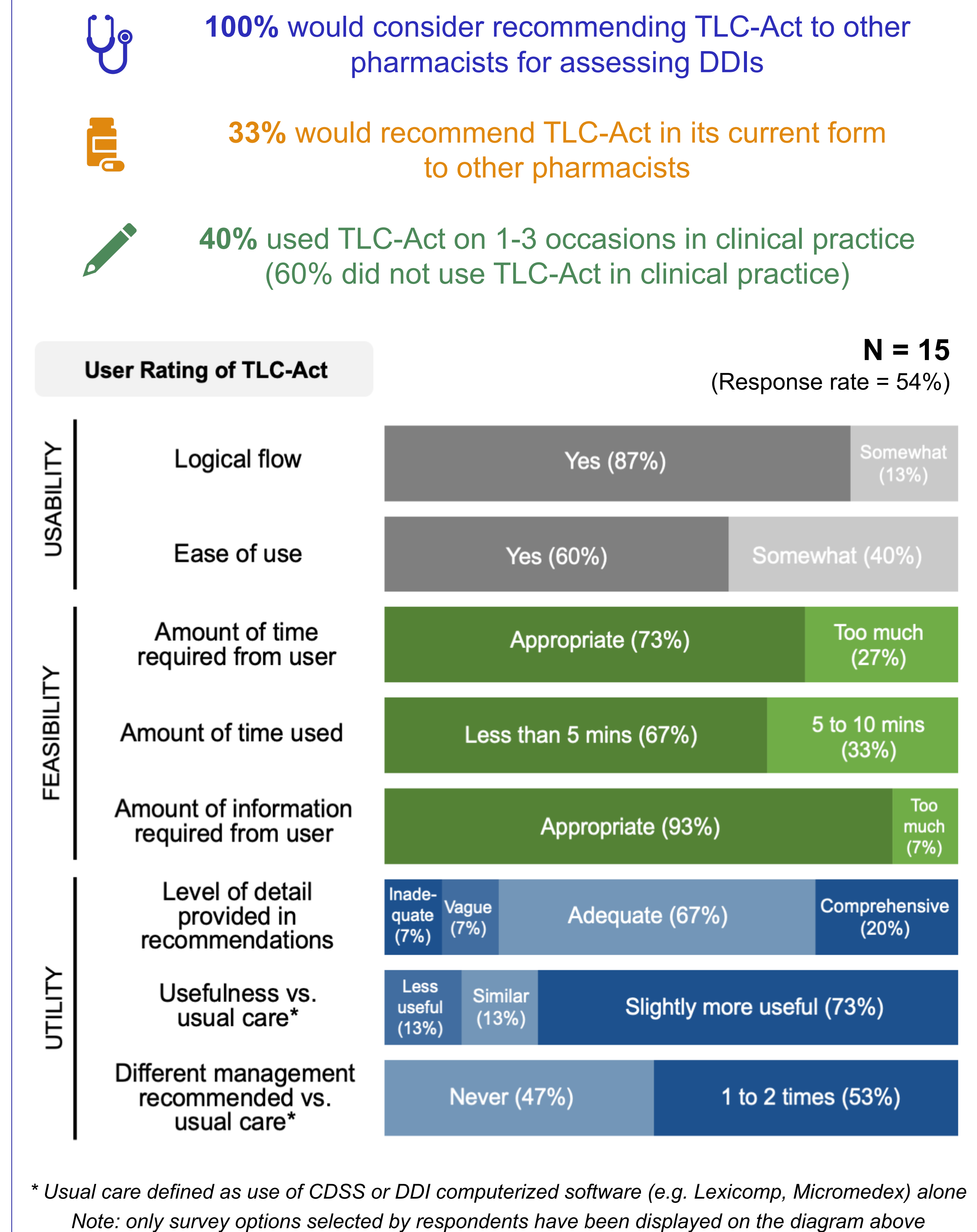


Scan QR code to view back page of TLC-Act tool

Scan QR code to view video on how to use TLC-Act



Figure 2: LMPs Pharmacy Residents' Feedback Survey Results



Discussion & Conclusions

- The survey results provide a preliminary understanding for the usability and utility of TLC-Act, which requires validation with a larger population of hospital pharmacists
- Majority of respondents perceived the use of TLC-Act to be slightly more useful compared to usual care for managing DDIs, suggesting the use of a standardized DDI management tool may be beneficial for new clinicians
- Further modifications aimed at reducing the amount of time needed to use TLC-Act may be required to improve the tool
- Additional research is needed to evaluate the impact on clinical outcomes for hospitalized patients