Secure messaging through PositiveLinks: examination of electronic communication in a clinic-affiliated smartphone app for patients living with HIV

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Background

- Electronic patient portal use has demonstrated improved clinical outcomes for patients with chronic diseases, including HIV
- Secure messaging is a highly valued feature within electronic portals that is associated with increased trust in providers and better patient-provider communication
- However, there is low uptake of patient portal use among vulnerable populations and those with low literacy
- PositiveLinks (PL) is our clinic-affiliated smartphone application, designed to enhance retention in care. PL includes a secure messaging feature to connect patients to their care team

Objectives

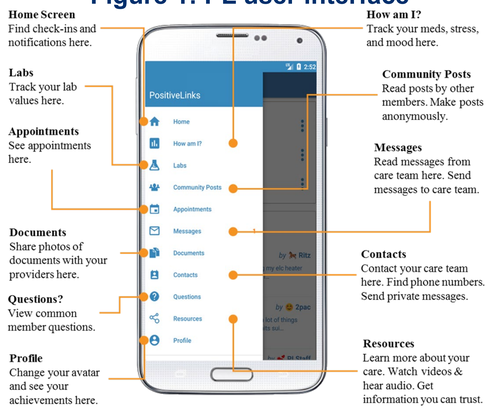
- Analyze secure messages exchanged between patients, staff, and HIV care providers through PositiveLinks

Methodology

About PositiveLinks

- PositiveLinks was designed and piloted at the University of Virginia (UVA), and is included in standard of care at the UVA Health System Ryan White Clinic.
- PL features include: secure messaging; daily queries of mood, stress, and medication adherence; educational resources; weekly quizzes; appointment reminders; lab values; and virtual support group

Figure 1: PL user interface



Secure Messaging Analysis

- PL messages from November 2017 – January 2018 were examined
- Messages were coded according to sender and recipient type (patient, provider, or PL staff), topic of message, and function of message
- Qualitative analysis of code frequencies and code co-occurrence was performed using Dedoose Version 8.1.8

Figure 2: Topic Codes

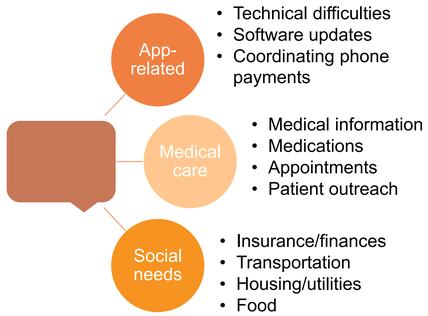
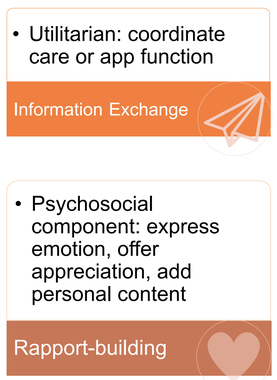


Figure 3: Function Codes



Results

Figure 4:Screenshots of de-identified conversations between patients, PL staff, and clinic providers regarding app-related issues, medical care, and social needs

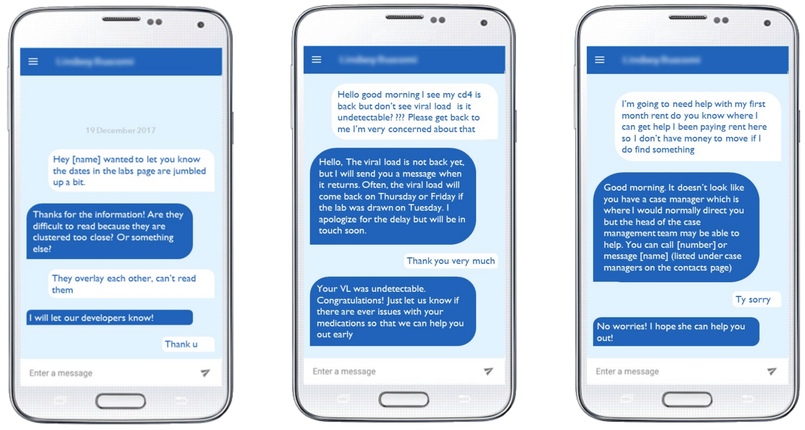


Figure 5: Message Senders

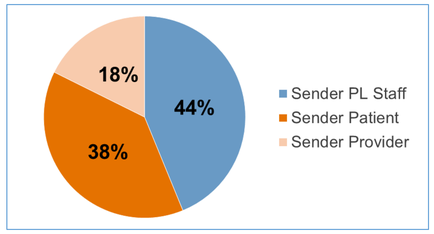


Figure 6: Message Recipients

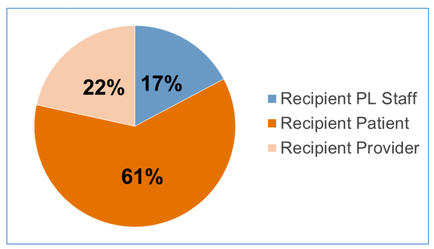


Figure 7: Code Co-occurrences

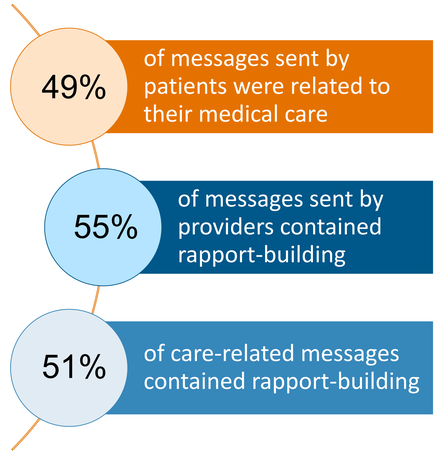


Figure 8: Topic and Function Code Frequencies

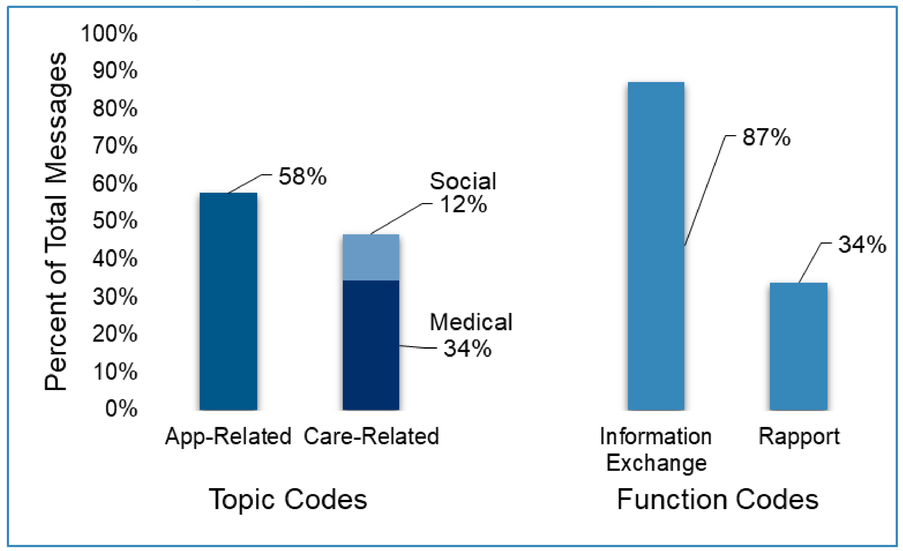


Table 1. Frequency of code occurrences stratified by sender

Code	Patient Sender (n=541)	Provider Sender (n=248)	PL Staff Sender (n=615)
Recipient			
PL Staff	44% (238)	0% (0)	1% (4)
Patient	0% (0)	100% (248)	99% (611)
Provider	56% (303)	0% (0)	0% (0)
Topic			
App-related	41% (221)	1% (2)	95% (586)
Medical	49% (265)	79% (195)	3% (21)
Social	16% (86)	29% (72)	3% (16)
Function			
Information Exchange	78% (421)	86% (212)	96% (592)
Rapport	46% (136)	55% (136)	15% (93)

Conclusions

- Secure messaging in the PL app is being used by patients, PL staff, and providers to address app and care related topics.
- Messaging via PL serves the purposes of both information exchange and rapport-building.
- Patient use of secure messaging may facilitate better adherence and engagement in care.
- Access to a mobile secure messaging system may help strengthen the patient-provider relationship in between clinic visits.

Future Directions

- More detailed analysis of patient-provider messages to include specific aspects of patient care
- Investigate the potential impact on provider attitudes, patient outcomes, and retention in care

Acknowledgements

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