POSTER ABSTRACT

User-centred co-design with multiple user groups: The case of the electronic Patient Reported Outcome (ePRO) mobile application and portal

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Carolyn Steele Gray[1,2], Anum Irfan Khan[2], Ian McKillop[3], Sarah Sharpe[4], Renee Lyons[1], Cheryl Cott[2]

1: Lunenfeld-Tanenbaum Research Institute, Canada;
2: University of Toronto, Canada;
3: University of Waterloo, Canada;
4: QoC Health Inc. , Canada

Introduction: Digital solutions are increasingly central in the delivery of integrated care models. Adopting co-design methods is one means to ensure usability of solutions. Although user-centered co-design is routinely embraced during software design, the challenges of eliciting needs from users with complex continuing health conditions is not well addressed by existing methodologies. We develop an approach to user-engagement for patients with complex care needs resulting in the creation of the electronic Patient-Reported Outcomes (ePRO) tool to support interprofessional primary care delivery.

Theory/Methods: User-centered co-design principles were integrated with interpretive descriptive qualitative research methods to capture user priorities, experiences, feedback and expectations. Phase 1 involved a needs assessment conducted through user focus groups and interviews. Phase 2 engaged user groups to iteratively design a prototype, and Phase 3 undertook a usability study prior to evaluation (currently underway). Iterative analysis consistent with qualitative interpretive description were used to generate findings at each phase.

Results: In Phase 1, 14 patients and caregivers participated in focus groups, followed by interviews with primary care providers, and experts in the field of primary care, complex care, and digital health solutions. Findings analyzed through interpretive descriptive methods linked user needs to technology solutions, generating a prototype with four key features (symptom monitoring, medication management, educational materials, hospital access notification). Modified cognitive walk-throughs with patients, caregivers and providers were used in Phase 2 to refined the prototype, resulting in the removal of education and medication management features, and revisions to the symptom monitoring and hospital access notification features. The Phase 3 usability assessment included in-depth focus groups and interviews with 11 patients and 6 providers who used the tool for four weeks. Qualitative data yielded surprising results regarding the feasibility and usefulness of ePRO resulting in a significant pivot in functionality from a tool that monitored symptoms, to one that supported personalized goal-setting and monitoring.

Discussion: Adopting rigorous qualitative methods alongside iterative technology development resulted in a tool that was very different than initially anticipated, but more useful and meaningful to end-users. While many critique user-centered co-design for resulting in status quo solutions,

our application of qualitative analysis techniques with a team of multi-disciplinary researchers and developers allowed us to be purposively disruptive and innovative, while still ensuring meaningfulness to users.

Conclusions: End users adopt technology that is perceived as valuable and meaningful. Working with unique populations required adoption of rigorous qualitative methods alongside design-thinking approaches as a means to effectively elicit user needs.

Lessons learned: True user-centred co-design means setting aside pre-conceived notions about what a technology solution should look like so we can really hear the challenges of users and innovate meaningful solutions.

Limitations: Each phase of the study had its own set of limitations. Small user groups and participants were engaged in each phase which may limit generalizability. Adoption of theoretical frameworks at each phase helps address this gap.

Suggestions for future research: Bringing forth foundational theoretical frameworks like interactionism can help inform design through better understand how users derive meaning from interacting with technology.