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Designing Technology for Assessments of CALD Patients

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Abstract. Interpreters are required to aid communication between clinicians and culturally and linguistically diverse (CALD) patients to ensure appropriate and timely care. Demand for interpreting services however, often exceeds supply. A mobile app to translate clinical assessment questions in 10 common languages using pictorial, written and voice-over prompts to assist patient assessments when interpreters are unavailable has been developed. This paper reports on the User Needs Analysis that informed the app. The analysis consisted of focus groups with allied health clinicians to understand pertinent aspects of initial allied health assessments and the communication needs to be addressed in the design of an app-based patient assessment tool. Outcomes show that of primary importance to clinicians was the ability to not only ask the patients questions, but to communicate information to increase understanding of, and ensure compliance with, treatments and interventions to promote patient function and comfort.

Keywords. Equity, language, mobile, app, digital health

Introduction

The Victorian communities served by Western Health (WH) have some of the highest levels of social-economic and cultural diversity in Australia, with more than 150 different languages spoken. The demand for interpreter services can, at times, exceed supply due to the variable demands for different languages and the availability of a qualified interpreter workforce. The high demand for interpreter services means that culturally and linguistically diverse (CALD) patients are sometimes unable to access timely assessment due to clinicians' inability to communicate directly with a patient, causing inequity in service delivery and frustration and anxiety for patients, carers and staff. Western Health Speech Pathology recognised the impact of delayed assessment of swallowing problems for non-English speaking patients in the absence of an interpreter. Their patients were at increased risk of dehydration, choking and poor quality of life. In response, the Cultural Key Phrases Tool (CKPT) was developed to address the challenge of timely and effective swallowing assessments with limited interpreter access. The CKPT uses predefined phrases, comprised of questions and instructions, with accompanying images to assist clinicians in conducting initial assessments. Previous versions, limited to Speech Pathology, included a flipchart booklet and prototype mobile application.

In this paper we report on the development of the CKPT app, through a project undertaken at Western Health. The goal of the app is to be able to conduct appropriate

and repeatable patient assessments in a variety of allied health disciplines and health settings with the support of technology. It is hoped that use of the app will reduce delays in initial patient assessments, to enhance the patient experience and improve patient care on a system-wide scale. We report here on the User Needs analysis, which included participants from physiotherapy, occupational therapy, dietetics, speech pathology and podiatry, and present the resulting iOS app.

1. User Needs Analysis

As the use of technology increases across hospital systems, mobile and tablet technologies will become the natural home for patient records, assessment tools and patient communication [1]. Mobile tools have been shown to play a role in assisting communication with a diverse range of patients including deaf and autistic patients [2,3,4]. The vision for this project is to develop a tool that allows a clinician to communicate with patients from non-English speaking backgrounds. The app would allow a clinician to select from key phrases that are included in a variety of languages, and through appropriate audio and video files, complete patient assessments and inform care. The intention of the tool is not that it replaces interpreters, but that it is used to ascertain relevant information from the patient until an interpreter can be present.

Scoping the requirements and challenges associated with the creation of the tool was carried out in the form of a User Needs Analysis. During the analysis we worked with staff to promote the idea of a mobile tool to assist in initial patient assessments, and sought input on the achievable assessment goals, supporting app functionality and app content including phrases, questions, images, video etc.

1.1. Methodology

Five allied health disciplines were identified as being potentially suitable for inclusion in this project; physiotherapy; occupational therapy; speechpathology; dietetics; podiatry. Allied Health disciplines were deemed suitable due to the structured format of typical assessments and their use of closed questioning. The allied health focus groups brought together 19 allied health clinicians with the research team. Recruitment of focus group participants was achieved through the managers of each allied health discipline. Five 90-minute discipline based focus groups were conducted. Each focus group was audio recorded and analysed.

1.2. Outcomes

After the initial briefing, focus group participants were enthusiastic about the project and the intended tool. They were highly accepting of a design process that factors in their needs. We present the needs analysis outcomes under the themes of the health assessment goals, app content and finally app functionality.

1.2.1. Health Assessments Goals

Given that the purpose of the app is to support clinicians to conduct their assessments, it was important to understand their processes. Focus group participants were therefore asked to describe the assessments that they typically conduct in the inpatient setting.

Physiotherapy assessments focus on a patient's mobility both prior to admission and currently. Mobility prior to admission is assessed through detailed open-ended questions. Current mobility is assessed through the observation of patients walking, and doing other assessment tasks, such as getting out of bed or climbing stairs. Physiotherapy also often assesses respiratory function. This includes assessment of respiratory rate, chest expansion, oxygen saturation and chest auscultation. Assessments are carried out at the bedside with the clinician seated at the bedhead.

Occupational Therapy assessments are highly structured and detailed. Occupational Therapy assessments gather detailed information on the patient's ability to carry out activities of daily living (ADL) such as cooking and tending to personal hygiene. Occupational Therapy assessments ascertain details pertaining to a patient's home and their cognitive ability.

Speech Pathology assessments focus on a patient's ability to swallow and/or communicate. Speech Pathology assessments traditionally take an open question format. Swallowing assessments determine if it is safe for the patient to eat and drink and require the patient to complete tasks, such as coughing or swallowing. Outcomes of a swallowing assessment inform strategies and the use of texture modified food and fluids. Outcomes of a communication assessment determine communication strategies that should be used when communicating with the patient.

Dietetic assessments cover a wide variety of diagnosis types. In the acute setting, a patient would be referred for a dietetic assessment if they had recently lost a significant amount of weight. Dieticians gather information on past and current weight and eating habits, reasons for weight loss and duration of weight loss. A nutritional assessment is completed requiring significant detail of dietary habits.

Podiatrists typically see patients with foot wounds, and/or patients who are diabetic. The setting for podiatry assessments differs from other disciplines as podiatrists typically spend time at the foot of the bed examining or treating the patient's foot or feet, as well as at the head of the bed talking to the patient. A podiatry assessment often includes treatment (e.g. lancing a wound, debriding), which requires use of instruments such as scalpels. Thus, podiatry clinicians gain verbal consent from patients for podiatry assessments and explain each stage of the podiatry assessment and intervention process as they progress.

The detailed nature of various aspects of the typical assessments described by each allied health group confirmed our view that limited or initial assessments, rather than full assessments, could be conducted through the CKPT app, and that interpreters would indeed be required for a full assessment. In each discipline information that could be used to inform patient care, or strategies for the patient were identified as valuable, and appropriate for inclusion in the app. An initial physiotherapy assessment could focus on *current mobility* using phrases and instructions asking the patient to complete tasks. An initial occupational therapy assessment could ascertain basic *ADL information* by asking questions about help received at home. An initial speech pathology assessment could focus on a *swallowing assessment* to determine if it is safe for the patient to eat and drink. An initial dietetics assessment would ascertain how much *weight* has been lost and the time frame, and the patient preference for supplements. Finally a podiatry assessment could be facilitated if the app informed the patient about the *type of assessment* that would be conducted.

1.2.2. Communicating Strategies

Often when an allied health assessment is completed, the clinician provides the patient with strategies for independent management and education relating to the assessment outcome. Focus group participants from occupational therapy, speech pathology, dietetics and podiatry requested that the CKPT app facilitate communication of strategies to a patient. It was suggested that knowledge of the importance of strategies could increase compliance with recommendations.

Occupational therapy participants noted the value of being able to provide education or strategies to patients around precautions that they should be taking, given their conditions. In addition, the ability to convey information to participants about the hire and/or purchase of equipment was perceived as highly useful in reducing confusion about payments or reluctance to accept equipment. Speech pathology strategies that relate to swallow assessments focus on maximising the swallowing safety of patients. These include the types of food that patients should consume, and the provision of instructions on how to consume food and drinks. Dietetic strategies focus on maximising the potential that supplements will be consumed. Obtaining preference for drink type, communicating that these drinks will arrive, and stressing the importance of their consumption are a desirable functionality of the app. Podiatry strategies include instructions about the use of equipment provided and wound care.

1.2.3. Communication Type

Participants in each allied health area raised the importance of being able to introduce themselves and explain the assessment and its purpose. Similarly, being able to exit an assessment politely and to inform a patient of their likely return is desirable in order to maximise patient comfort and experience.

1.2.4. App Content

Phrases: Four categories of phrases were identified that relate to the flow of a typical assessment. *Introductions*, *Assessment*, *Education* and *Closing*. Participants provided lists of phrases that are desirable to conduct an initial assessment in their clinical area. Suggestions were refined to the minimum number of phrases required for a valuable initial assessment. This resulted in a final library of 116 words and phrases. Suitable answer options and follow up questions were also determined and included.

Media: Focus groups identified the need for video and still images to assist in the comprehensibility of the content of the app for patients, particularly those patients with cognitive or communication impairment. The combination of written words/phrases and audio was also identified to best meet the accessibility needs for patients with hearing or visual impairment. Video demonstrations were requested for instructions or strategies that could not easily be demonstrated by the clinician at the bedside.

Languages: In consultation with the WH Manager of Language Services, occasions where interpreting services were provided were analysed, including instances of unmet need. The languages identified are largely reflective of the common languages identified in the Australian Census (2011) as well as the specific needs of the Hospital. Mandarin, Cantonese, Vietnamese, Italian, Greek, Macedonian, Serbian, Croatian, Arabic and Spanish were selected for inclusion.

1.2.5. App Format and Functions

The basic app functions include the ability to select a language and to select a phrase to communicate to a patient (see Figure 1). With a library of over 100 phrases a sensible grouping of content is required. To this end phrases are listed alphabetically by keyword as well as grouped by discipline (see Figure 2). A third method of navigation requested was a search tool, which allows fast retrieval of individual phrases to potentially increase the applicability of the app beyond the allied health disciplines.

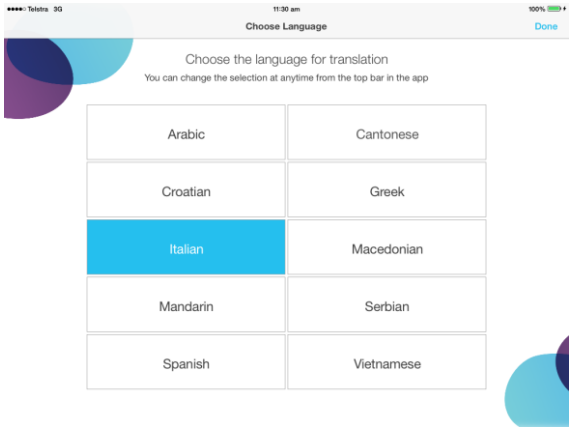

Figure 1. Language Selection.

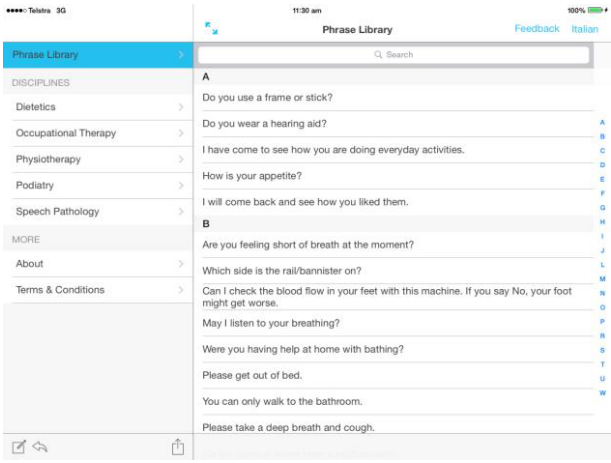

Figure 2. Phrase library and discipline based navigation.

2. CKPT App

The new CKPT App has been designed and developed based on the outcomes of the user needs analysis. The app is simple in design and function. Clinicians select the language that is appropriate for the patient that they wish to assess (see Figure 1). The five allied health disciplines are shown in the left hand panel of Figure 2. Selection of a discipline reveals the assessment structure including Introductions, Assessment etc. (see Figure 3). Expansion of a section such as Assessment reveals the relevant phrases. Selection of an individual phrase reveals the text and media relating to the phrase as appropriate. The display shows the phrase in the language selected in large font, accompanied by smaller English font for the clinician. A menu bar on the horizontal provides access to an audio file of the phrase, answer options and follow up questions.

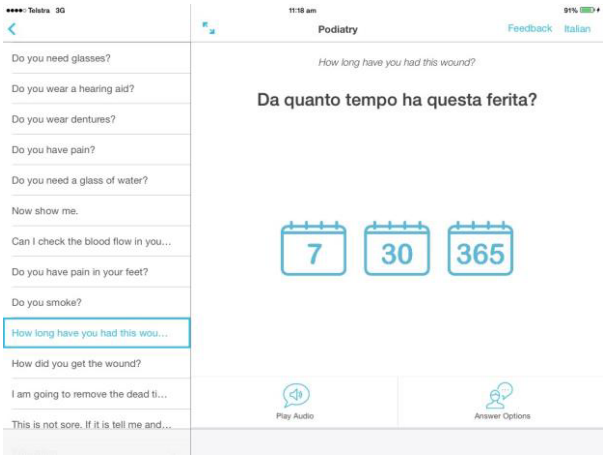

Figure 3. Phrase display.

3. Future Work

A trial of the CKPT app commenced in February 2015 at WH. The evaluation aims to quantify the value in the provision of a mobile tool to assist allied health clinicians in completing initial assessments with patients from a non-English speaking background when an interpreter is not available. The CKPT app has been introduced on five wards and qualitative and quantitative analysis of the impact of the app will be conducted. Specifically we wish to determine impact on wait times for initial assessments and patient and staff acceptance of, and satisfaction with, the CKPT app.

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