



Australian e-Health
Research Centre

Simple solution for a complex problem: Facilitating clinician-patient communication in the absence of an interpreter

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Evolution of healthcare in a digital age



2010 The City of Brimbank (VIC) Wurundjeri and Bunurong People

- >150 nationalities
- >150 languages
- >60% households not English
- >1 in 5 residents no English



Non-English speaking patients are sometimes unable to access timely care

In the beginning... Speech Pathology



Patients were at risk of dehydration, choking and poor quality of life.

- 10 common languages
- Key phrases, instructions and photographs
- Assessment completion increased from 30% to 80%



CALD Assist app development 2014



Accurate, easy to use platform to facilitate communication with Culturally and Linguistically Diverse (CALD) patients to improve health service delivery

Competitive Analysis (e.g. Google translate)

- Multimodal
- No WiFi connectivity
- No data collection and tracking
- Time to type in conversation
- Text to speech
- Inaccuracies (esp. medical terms)

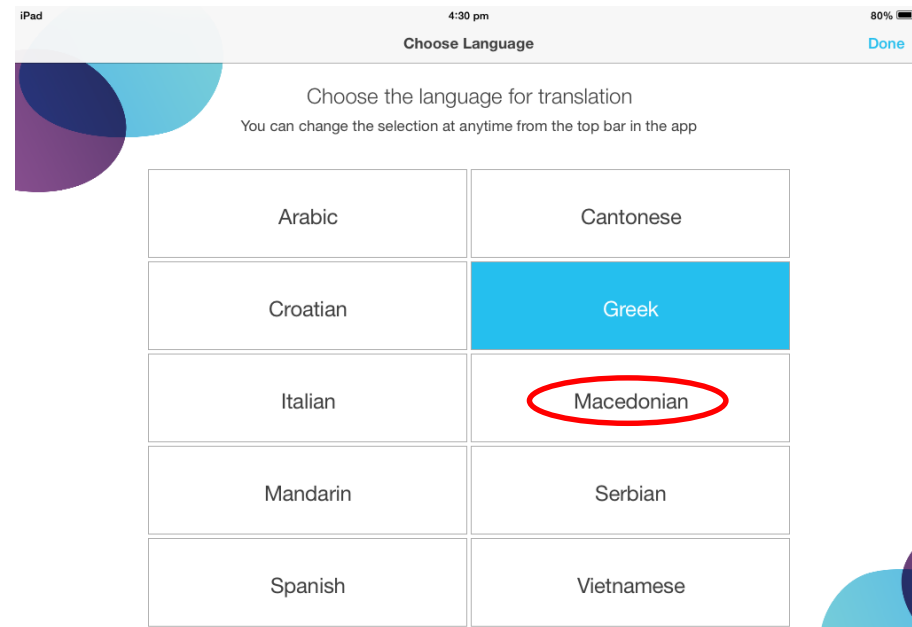
NOT a SaMD

Funding: Victorian Department of State Development, Business and Innovation

CALD Assist app for Allied Health



- 10 Languages
- 5 Disciplines
 - Speech Pathology, Physiotherapy, Podiatry, Dietetics, Occupational Therapy
- >95 key phrases
 - Intro, assess, educate, exit
 - Focus on Assessment



Functions and features



The screenshot shows a mobile application interface for 'Speech Pathology'. The top navigation bar includes 'Feedback', 'Macedonian', and a search icon. The main content area displays a translated phrase in Macedonian: 'Bi sakal da vi postavam edno specifični informacii za site lekovi koi može da bidat prezemanje'. Below the text is an image of several pills. The interface also includes a list of questions on the left and a bottom menu with three options: 'Play audio translation', 'View answer options', and 'View follow up questions'. Red arrows from external labels point to these features: 'Discipline Phrases' points to the top bar; 'Feedback', 'Language', and 'Search' point to their respective icons; 'Translated phrase' points to the Macedonian text; 'Associated image' points to the pill image; 'Menu Options' points to the bottom navigation bar; and 'Follow up question' points to the 'View follow up questions' button.

Follow up questions



- Admission
- Do you have any valuables with you?
- We will keep them safe until you leave hospital.
- Do you have your medications with you?
- Do you need glasses?
- Do you wear a hearing aid?
- Do you wear dentures?
- Are you incontinent?
- Do you wear a pad at home?
- Do you need a special diet?
- Have you lost any weight in the last 6 months?
- Do you need a frame or a stick?
- Are you pregnant?
- Do you understand?
- Would you like me to repeat it?

Feedback Spanish

Have you lost any weight in the last 6 months?

Follow Up Questions

Done

¿Adelgazó en los últimos 6 meses?

How much weight have you lost?

¿Cuánto adelgazó?



1-5kg 1-5kg	6-10 kg 6-10kg
11-15kg 11-15kg	15kg + 15kg +



Play Audio



Answer Options



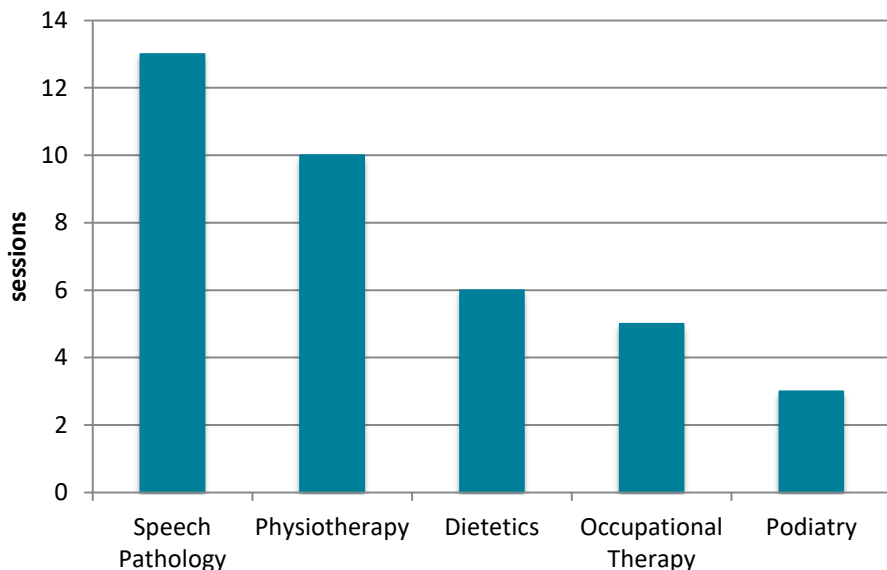
Follow up Questions



Allied Health trial results



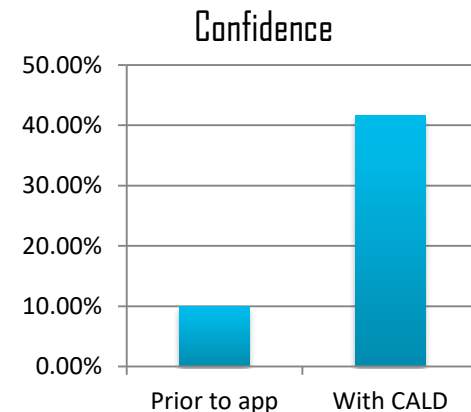
Sessions: 32 Phrases selected: 128



Mins to complete	Prior	With app
Max	80	30
Min	10	2
Average	42.0	15.6

83.33% "I found the app easy to use"

100% "Learning to operate the app was easy"



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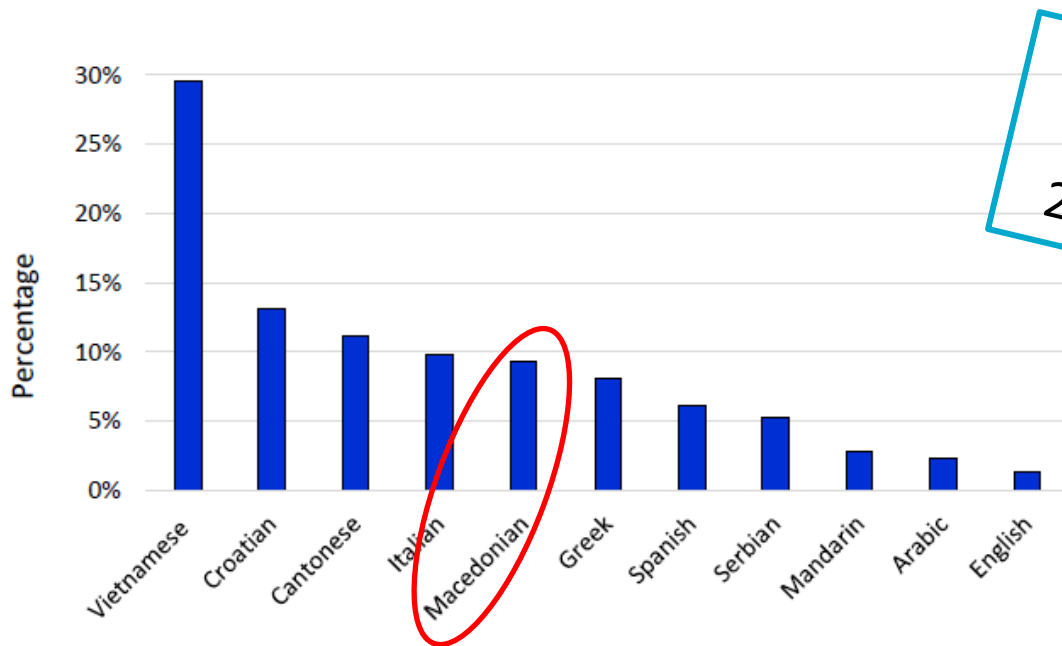
What about us? Nurses 2017



- 10 Languages + English
- >150 key phrases
- Focus on daily care
- 16 sections
 - Pain
 - Hygiene
 - Mobility
 - Nutrition
 - Contenance, etc.



Nurses' use exceeded clinicians



396 Sessions!
~150 seconds
26 sessions/week

Nurses' use was highly varied

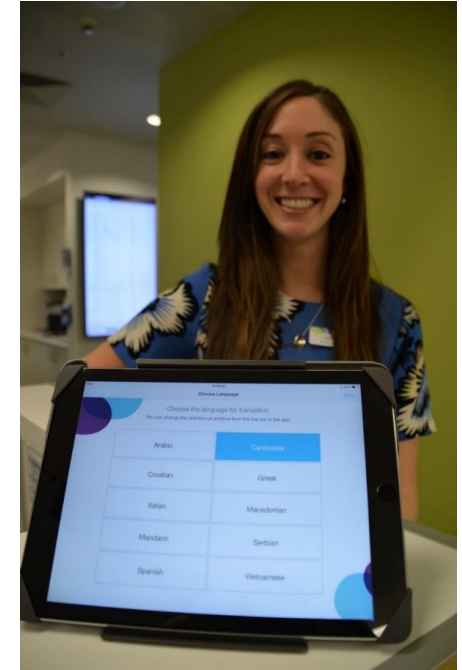


Category		Category	
Pain	141	Nutrition	55
General	94	Communication Access	54
Continence	74	Admission	47
Hygiene	73	Closing	41
Observations	69	Skin Integrity	30
Introduction	68	Discharge	24
Mobility	65	Assessment	20
Procedures	64	Neuro Observations	17
Use of CALD Assist	59	Education	5

Nurses' perceptions



- 224 interactions
- App was used in 75 interactions (33%)
 - ~90% positive feedback from staff and patients
 - Increased staff confidence ($p < 0.001$)
 - Increase success of interactions ($p < 0.001$)
 - Lower levels of frustration ($p < 0.005$)



Our darkest days... brightest for the app



In 2020:

- Enhanced with a COVID-19 screener
 - Collect critical information from CALD patients
 - deliver key health messaging about recommended behaviours, restricted movement and testing
- Re-developed for Android phone and tablet, and Apple phones

In 2021:

- Endorsed by the NSW Ministry of Health and NSW Multicultural Health Communication services to be used across NSW health to support patient-staff communication
- Creating a more inclusive environment, where communication with CALD patients improves, reducing stress and frustration in both staff and patients

From innovation to endorsement



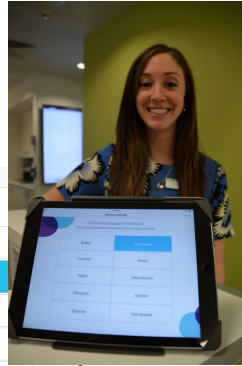
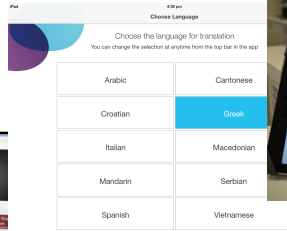
2010

2014

2017

2020

2021



Multicultural Health Communication Service



Health

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And the Award goes to...



- 2015 Health Informatics Society Australia, Branko Cesnik Award for Best Academic/Scientific paper
- 2015 Gold 'Improving health equality and closing the gap' Victorian Public Healthcare Awards
- 2017 'Improving the Continuum of Care' Health Round Table Innovations Award
- 2018 'Certificate of Merit' Victorian iAwards
- 2018 iAwards PitchFest winner Public Sector and Government category
- 2020 Inclusion, Trust and Respect Award, Health & Biosecurity, CSIRO
- 2021 The CSIRO Medal for Diversity and Inclusion

Simple, no wifi, strong co-design, kept alive

Solving communication frustrations



*Communication in health settings
is a complex problem with a simple solution
(and it's free)*

*CALD Assist is a purpose-built app
improving service delivery to non-English speaking patients*

Available in the AppStore



Australian e-Health
Research Centre

Thank you

Research Team

Western Health: Courtney Pocock, Sally Brinkmann

AEHRC: David Silvera, Jill Freyne, Karen Harrap,
Vanessa Smallbon, Dana Bradford

