

# Technology-enabled Platform for Proactive Regular Senior-Centric Health Assessments (PITCH)

Last updated: July 2023

## Summary

- Caregivers were asked to train on, and use technology - a mobile app, called PITCH - to proactively monitor seniors' health, during routine care, for risk factors that could predict hospitalizations or other negative health outcomes.
- Seniors completed regular health assessments with their caregiver. Caregivers entered the results into the app, for analysis. The assessments could involve physical health (like weight and blood pressure) and cognitive/mental health (like word recall and quality of life). All equipment was provided in a kit that was stored in the senior's home.
- Goals included:
  - Train the caregivers on, and to use the mobile app, PITCH, and evaluate the feasibility of caregiver-driven home health assessments.
  - Train caregivers to administer health assessments with provided home kits and determine if changes are significant for health.
  - Identify and understand the factors that may predict changes in a senior's ability to stay at home.
- 206 caregivers were trained to use the app and assess the health of their patients (participants) weekly. 154 voluntary client participants (55+) within the existing Kindred Home healthcare system – majority English-speaking – were included.

## HSPP Focus Area

Using supportive technologies to foster healthy aging at home

## Project Start & End Date

January 9, 2019 – October 31, 2021

## Organization/Agency

Kindred Home Care, University of New Brunswick, VeroSource Solutions Inc.

## Location

New Brunswick (province-wide, Anglophone communities)

## Principle Investigator(s)

[Brittany Jensen](#)

Indicator	Impact / Outcome / Result	Quote
<p><b>Test to see if caregivers could be trained on, and to use the app, PITCH.</b></p>	<p>Caregivers can be trained on, and to use the app. The app was accepted and appreciated by both caregivers and client participants.</p> <ul style="list-style-type: none"> <li>• Caregivers liked the extra responsibility and training.</li> </ul>	<p><i>"This program helped because of some of the questions that [my caregiver] would ask, it would get us on a particular subject that I might be having a problem with. And we just sat [and] discussed. I enjoyed the communication that it gave us. Up and above it just being something that we ourselves were [already] doing."</i></p>
<p><b>Collect and analyze satisfaction of the app, and health assessments, by both caregivers and participants,</b> using user satisfaction scores for caregiver surveys; client assessment completion rates; and time to complete assessments.</p>	<p>The assessments were appreciated by both caregivers and client participants.</p> <ul style="list-style-type: none"> <li>• Client participants appreciated their health being more closely followed.</li> <li>• The assessments were easy to do and did not take much time.</li> <li>• Some client participants were wary of disclosing personal information.</li> <li>• Some client participants were concerned about the cost of the kits used and many said they would not be able to afford them on their fixed incomes.</li> </ul>	
<p><b>Impacts on patient participants health.</b></p> <p>12 months of assessment data on key metrics with comparative analysis to capture key predictive indicator.</p>	<p>Not enough data was gathered to determine the impacts on client participants' health. 9 months of data collection were completed. It was determined that the training and assessments were successful in obtaining regular health measures and <i>could</i> be used to predict health changes before a possible negative health event occurs if further data could be gathered.</p>	

## Methods and Comparison

Data was collected by the 206 caregivers weekly, for up to 36 weeks, on the 154 client participants. Data was analyzed to see if risks could be identified, such as changes in a patient's health measures. Interviews with both caregivers and client participants were completed.

## Conclusions and Lessons Learned

At the end of this study, not enough data was gathered to determine the impacts on participants' health. Additionally, assessments were not passed on to care providers, so their usefulness in assessing health changes was not determined. Rather, this project was shifted and demonstrated:

- Caregivers can be trained on, and to use the app.
- The app and the assessments were accepted and appreciated by both caregivers and client participants.
- It is believed that the app *could* be used to predict health changes before a possible negative health event occurs.

More data is needed to develop a statistical, predictive model able to predict future adverse health events, such as a heart attack or stroke from changes in the blood pressure, etc. from the app and assessments. COVID-19 reduced this dataset.

Many seniors do not have the skills, knowledge, or technology to regularly monitor their health on their own at home. Without regular, proactive health monitoring, we cannot identify seniors at risk of negative health outcomes (like hospitalizations) before such events occur.

Hospitalizations and other negative health events are detrimental to seniors' health and costly to the healthcare system. Proactive health monitoring may help seniors avoid negative health events and remain safely in their homes for longer. Having trained caregivers use their skills and technology to monitor seniors' health makes proactive health monitoring more accessible to seniors receiving home care.

## Recommendations

- All caregivers could be upskilled to give assessments using this app and monitor their clients on a regular basis.
- Routine health assessments are currently not a standard for in-home care. Routine health assessments should become a standard for in-home care to detect trends in individual senior's health, this could lead to earlier interventions. This would need further research by linking the health assessments with client's physicians or other provider to assess the data and intervene when appropriate.
- The assessments would need to be tailored to suit individual needs going forward based on client and caregivers' feedback.
- A larger research project should be completed to include a larger sample size and allow for more data collection, analysis, and the development of a statistical, predictive model to predict future adverse health events.
- The app has the ability to share data with a patients' circle of care, and to set alerts. This could be considered for future research.
- With further research and a sustainability/scale plan (with adaptations), assessments could be applied to long-term care facilities, as well as those in recovery and rehabilitation, and to develop a predictive model for that cohort.
- With further research and a sustainability/scale plan (with adaptations), this model could be used for other cohorts in the future, such as those who have had a stroke, spinal cord injury, other mobility-related disadvantages, those recovering from surgery.

## Next Steps

A shared cost model has been proposed with the Government of New Brunswick's Departments of Social Development and Health (2022), to leverage this model and support provincial-scale, population-level health planning – scaling the program across the province.

This would allow data-driven approaches for planning and evaluating policy decisions while maintaining the benefits seen in this project. The researchers believe that individual and community-level benefits were demonstrated and should be scaled up to province-wide. A key assumption is that health outcomes

collected during assessments will lead to predictive insights and support preventative actions to maintain senior independence. More data will validate this assumption and enable the feasibility of developing a model predicting adverse health events.

**Disclaimer**

The views expressed herein do not necessarily represent the views of the Public Health Agency of Canada.

*Financial contribution from*



Public Health  
Agency of Canada

Agence de la santé  
publique du Canada