

# SMART Technology Solutions for Persons with Mental Illness

Deborah J. Corring, PhD  
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# Supported Mental Health Assessment Rehabilitation and Treatment (SMART) for Mental Health and Addictions

A Major Focus of the Lawson Health Research Institute  
Mental Health Research Group in London, Canada  
A 7 Year Strategy in Year 6

**Research Evaluation Framework: Supported Mental Assessment Rehabilitation and Addictions (SMART) for Mental Health and Addictions:** Through our research we will study the latest technological advances on the market, deploying them at care gaps as identified by the researchers, care providers and consumers. Considerations will include decision-making on what technologies are best suited to individual's needs for a personalized perspective, while monitoring the clients and technologies for best health outcomes. Working within the continuum of care now in place (primary, acute, tertiary, and community), we will develop a testing platform to validate new technologies to health care and the market place, while developing a collaborative platform for evidence-based research. Research outcomes will support informed decision making on how to improve and advance the health care as a whole for patients, populations, health-care professionals and policy-makers.

Research Evaluation Framework  
Smart Technologies to Support New Paradigm of Health Care

#### EFFECTIVENESS ANALYSIS

*Target populations: demographic data and characteristics ( income status, housing, etc)  
Evaluate interventions delivered: technology use 'in context' and over time, health promotion  
Implementation system: intervention fidelity  
Intermediate outcomes: Consumer usability testing, uptake or fit of technology with life patterns,  
longer term outcomes: e.g. health status, quality of life etc*

#### ECONOMIC ANALYSIS

*Evaluate "value for money" – extra cost vis-à-vis the extra benefit  
Analysis of person level cost and outcome data for each study participant  
Analysis of costs and benefits on a societal level to identify specific sub categories such as,  
caregiver costs, health costs, government costs etc.*

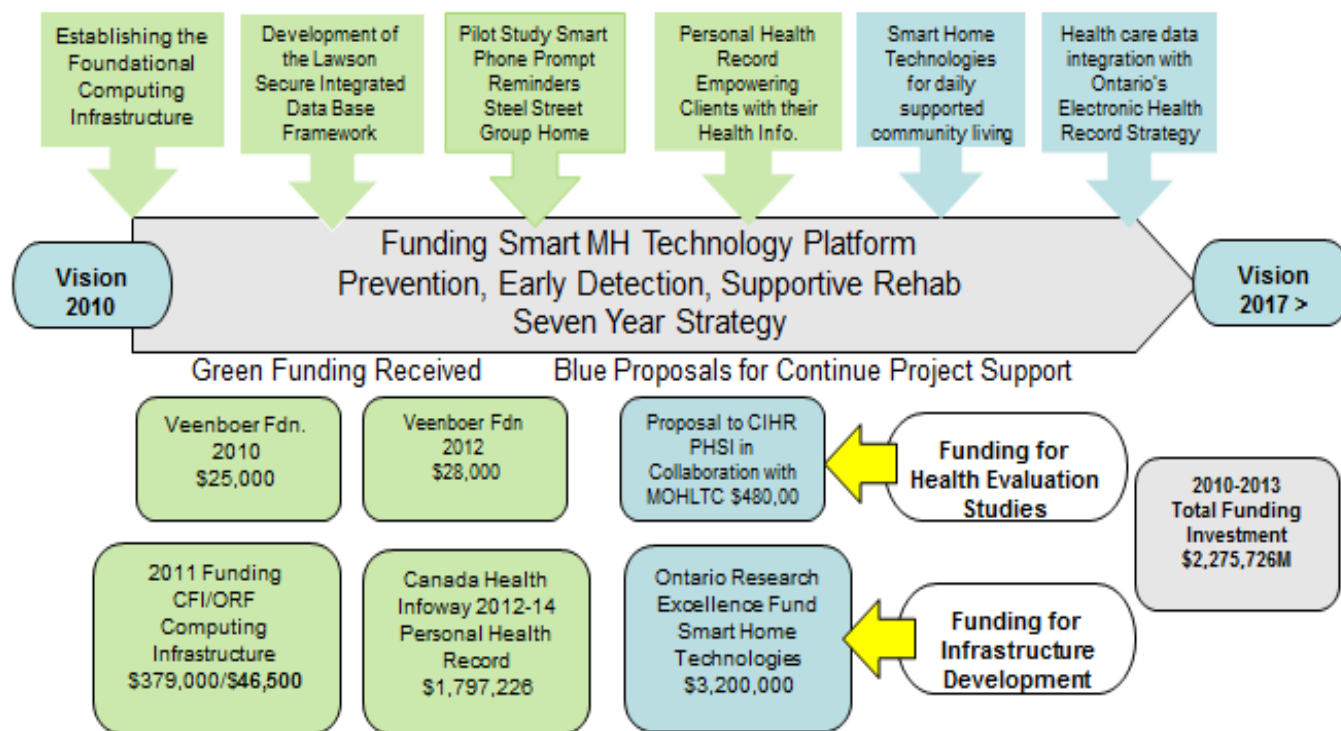
#### ETHICAL ANALYSIS

*Evaluation of specific ethical implications in data exchange, secure storage, and use of  
technologies  
Comparison of ethical standards to project's findings in relation to fairness, autonomy, privacy,  
social inclusion etc*

#### POLICY ANALYSIS

*Identification of specific policy implications in data exchange, secure storage, and use of  
technologies  
Address policy implications arising from the issues identified throughout the research process.  
Include key stakeholders in identifying both problems and solutions*

Technology Research Assessment Innovation Network (TRAIN)  
"Consumer Facilitated Ecosystem of Care"



Projects and Funding

# **Mental Health Engagement Network (MHEN):**

*Facilitating Mobile Patient Centric Care*

*Principal Investigator: Cheryl Forchuk, PhD*

*Research Team: Corring D, Campbell R, Donelle L, Edwards B, Godin M,  
Hoch J, Mitchell B, Neal D, Norman R, Osoka W, Osuch E, Petrenko M,  
Reiss J, Rudnick A, Vingilis E.*

# Presentation Outline

- MHEN Project Context
- MHEN Project Results and Findings
- Lessons Learned and Implications

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# Mental Health and Care Challenge

- 20% of Canadians experience mental illness, only 1/3 receive treatment
- 500,000 employed Canadians are unable to work due to mental illness in any given week (2/3 disability cases + 1/3 FT absenteeism)
- Mental health is the number one cause of disability in Canada, accounting for nearly 30% of disability claims and 70% of the total costs
- Current treatment cost estimates of mental illness:
  - depression: \$5 billion
  - schizophrenia: \$2.7 billion
  - uninsured mental health services: \$6.3 billion

**\$51B in lost productivity and healthcare costs**



# Mental Health Engagement Network (MHEN) Project Objectives

- Improve the health outcomes and quality of life for people living with psychotic or mood disorders
- Leverage mobile technology and a PHR to digitally connect clients and their clinical team
- Deploy and evaluate the benefits of an electronic PHR which provides:
  - Patient access to their own health information (through LIDB)
  - Interactive tools such as a mood monitor and journaling
  - Standardized health services through customized care plans
  - Ongoing monitoring of activities with alerts and reminders
  - Regular communication between clients and their care team

# Mental Health Engagement Network (MHEN)

## Current Partners

- **Canada Health Infoway:** Consumer Health Innovation Program
- **Lawson Research Institute:** Comprehensive evaluation expertise around innovative technologies
- **London Health Sciences Centre and St. Joseph's Health Centre:** Pushing the transformation agenda
- **Canadian Mental Health Association (London-Middlesex) & WOTCH:** Community mental health agencies
- **TELUS Health:** Investment in consumer health engagement solutions





## Welcome to Lawson's SMART record!

This personal health record has been designed to assist individuals to collect, store, update their personal health information and display the data collected in a user friendly manner.

### FOR OUR CLIENTS

The SMART record can assist you in managing your conditions in consultation with your primary care provider. Click the Sign in button to continue in your journey to wellness.

Sign In

### FOR CARE PROVIDERS

The SMART record enables you to keep track of your clients' health and assist them in achieving their wellness goals. Click the Sign in button to continue your interaction with your clients.

Sign In

# The Mental Health Engagement Network is a Mobile Mental Health Personal Health Record

SMART record  
IN PARTNERSHIP WITH  
LAWSON

Refresh Cache

TELUS HEALTH

Home Manage My Health Measurements Medical History Reports Profile & Settings Health Survey References

Welcome, John Martin | [sign out](#)

## Home

Welcome to Lawson's SMART record! This personal health record has been designed to assist individuals to collect, store, update their personal health information and display the data collected in a user friendly manner.

### HEALTH JOURNAL ENTRY FORM

\* Date YYYY-MM-DD mandatory field

\* Time HH : MM Ⓞ AM Ⓞ PM

#### MY MOOD

On a scale from 1 (extremely sad) to 7 (extremely happy), how is your mood at the moment?

No Answer

Slide the circle to indicate your answer

Value: - 7

#### MY SLEEP

How many hours did you sleep?

hours

Quality of Sleep

Select

### APPOINTMENTS

Show : All [Add New Item](#)

DATE	APPOINTMENT WITH	REMINDER
2013-10-30 9:00 AM	Alfred Chanine	<a href="#">Set Reminder</a>
2013-10-29 10:00 AM	Pharmacy	<a href="#">Set Reminder</a>
2013-08-29 9:00 AM	St Andrews Church	<a href="#">Set Reminder</a>
2013-06-03 9:00 AM	Dr. Marks	<a href="#">Set Reminder</a>
2013-05-30 9:00 AM	Alfred Chanine	<a href="#">Set Reminder</a>

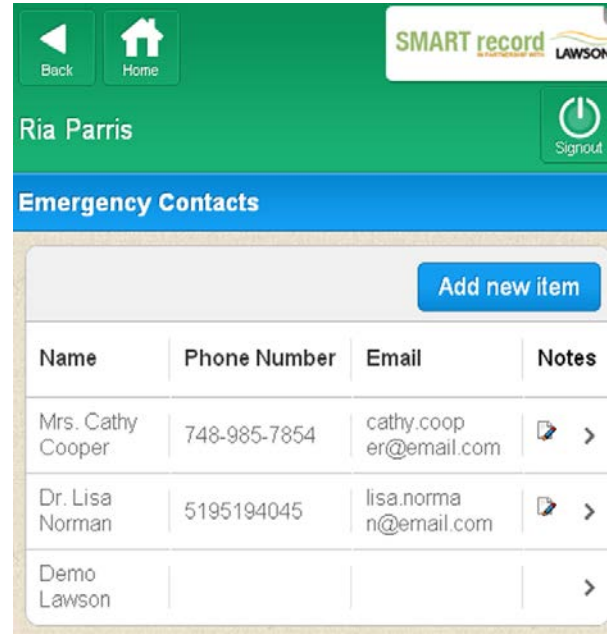
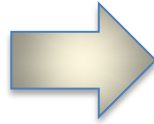
12

### REMINDERS

Date Range : Upcoming Related Item Group : All [Add New Item](#)

No records found

# Mobile View



# Provider Portal



Welcome, Demo Lawson | [My account](#) | [sign out](#)



Home

My Patients

References

## MY PATIENTS

All Patients

Create New View

PATIENT NAME	NEW ALERT	LATEST LDL CHOLESTEROL (MMOL/L)	WEIGHT (KGS)	DATE OF BIRTH	LATEST BLOOD PRESSURE (MMHG)	LATEST A1C (%)	
Ria Parris (FullAccess)		3.00	52.0	1980-01-15	120/80		<a href="#">Delete</a>
Jane Mary Johnson (FullAccess)		2.59	63.5	1971-06-12	125/85		<a href="#">Delete</a>
Kelly Padgett (FullAccess)		60.00	80.0	1984-03-06	102/103		<a href="#">Delete</a>
Mary Conrany (FullAccess)		4.01	125.0	1960-01-01	80/80		<a href="#">Delete</a>
Wilma m Flintstone (ReadOnly)		4.99	45.4	1965-06-01	110/67	3.0	<a href="#">Delete</a>

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Connects with TELUS health space



# Project Evaluation Design

200 in Early Intervention Group receives MHEN intervention (August 2012)

200 - Delayed Intervention Group receives MHEN intervention (March 2013)



## 6 Month Delayed Implementation Design

- Delayed Intervention Group acts as a control group for first 6 months
- As both groups are receiving traditional therapy, improvement in both groups are expected
- Magnitude of improvements that result from the intervention, is the **“difference of the differences”** (i.e. take the improvement in the early intervention group and subtract any improvement seen in the delayed intervention group)
- Data collected included use of devices, perception of usefulness, quality of life, empowerment, general health, and use of health and social services

# Quantitative Data

- No change in overall health or ER visits
- Increased community integration
- Decreases in psychiatric admissions, outpatient visits, and arrests



# Qualitative data indicates positive benefits for both providers and patients

## Qualitative Findings (structured Interviews)

## Perceived Benefits

Patients

Care providers more accessible  
Boost in self esteem and self awareness  
Feeling more connected to community supports  
Potential for reduced health service utilization  
No privacy or confidentiality issues

Improved Access  
&  
Self-Resilience

Care Providers

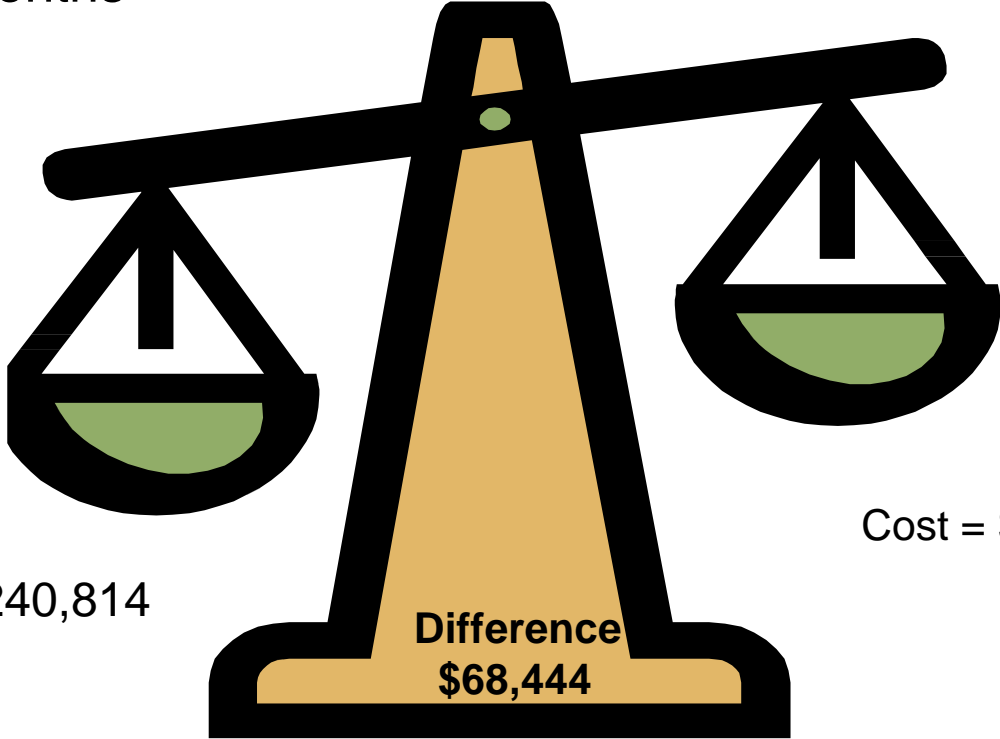
Patients more accessible  
Workflow impacts: Time savings  
Increased productivity during patient sessions

Service  
Productivity



# Return on Investment (ROI)

200 Users for 6 months



Savings = \$240,814

Cost = \$172,370

**Difference**  
**\$68,444**

# What Have we Learned?

- **Intervention/Product for Clinical Problem**
  - Current solution brought value to users
  - Deeper understanding of usage and value of functionality - could be less complex
  - Research design should be more agile
- **Operational Model**
  - Determine ideal care setting; stage of care and target population
  - Single point of contact for support – ability to scale with ease
- **Infrastructure**
  - Able to integrate well into the LIDB and link to standardize reporting tools is a future plan
  - Need for robust analytics on usage, impacts and product iterations
- **Business Model**
  - Ensure market offer addresses a market need, is for scale and has cost certainty
  - Investigate public and private payer models

# Questions and Discussion

