



**Ontario Shores**  
Centre for Mental Health Sciences

*Discovery. Recovery. Hope.*

## **Technology- Enabled Patient Engagement in a Behavioral Health Setting**

Sarah Kipping RN, MSN, Director, Professional Practice and Clinical Informatics  
Wendy Odell BBA, CHIM, CPHIMS-CA, Director, Mental Health HIS Cluster  
Ontario Shores Centre for Mental Health Sciences

# Speaker Introduction



**Sarah Kipping, RN, MSN, Director, Professional Practice and Clinical Informatics, Ontario Shores Centre for Mental Health Sciences**

Sarah Kipping is a Master's prepared Registered Nurse who has practiced nursing in both acute and behavioral health settings. Most recently, she has acted in advanced practice nursing roles as a Clinical Nurse Specialist in a Forensic Mental Health program as well as in her current role as a Clinical Practice Leader in Professional Practice. Sarah's point of care experience in acute care includes having worked as a Registered Nurse and Team Lead within a specialized mental health setting.

Her passion and dedication to advancing quality mental health care are exemplified in her contributions to initiatives such as Ontario Shores' HealthCheck Patient Portal, Virtual Patient Engagement Strategies and Health Care Delivery, Quality Standards, and the continued advancement of Ontario Shores' Recovery philosophy. Sarah is a strong advocate for the role of health information IT in advancing patient engagement in behavioral health.



**Wendy Odell, BBA, CHIM, CPHIMS-CA, Director, Mental Health HIS Cluster, Ontario Shores Centre for Mental Health Sciences, Waypoint Centre for Mental Health, Royal Ottawa Healthcare Group**

Wendy Odell is a healthcare leader with over 15 years experience in the digital health profession who has a passion for quality improvement in healthcare for patients, families and clinicians.

In her role as the Manager, Clinical Information, Wendy played a key role as part of the project team that led Ontario Shores in achieving the HIMSS EMRAM Stage 7 designation in 2014 and the HIMSS Davies Enterprise award in 2015, placing Ontario Shores as the first hospital in Canada and the first behavioral health organization in the world to receive these awards. She has also worked on numerous initiatives aimed at leveraging health information IT to drive quality improvement including Ontario Shores' HealthCheck Patient Portal.

Wendy holds a Bachelor of Business Administration (BBA) and is currently completing the Masters, Health Informatics (MHI) program at the University of Waterloo. She has successfully completed the Certified Professional in Healthcare Information and Management Systems (CPMIS-CA) and is also a certified with the Canadian Health Information management (CHIM) Association.



**Ontario Shores**

<http://www.himss.org/ValueSuite> Centre for Mental Health Sciences

# Disclosure of Conflict of Interest



Ontario Shores

<http://www.himss.org/ValueSuite> Centre for Mental Health Sciences

# Learning Objectives

- 1) Analyze virtual care strategies taken in a behavioral health environment
- 2) Assess the benefits and limitations of a mobile health app for engaging patients generally, and mental health patients in particular
- 3) Discuss methods for evaluating the performance and impact of a patient portal



Ontario Shores

<http://www.himss.org/ValueSuite> Centre for Mental Health Sciences

# Ontario Shores at a Glance



- Teaching hospital specializing in comprehensive mental health care and addiction services
- 1,300 employees; 326 inpatient beds; over 60,000 outpatient visits
- Provide Recovery-oriented care to a wide range of services: Adolescents to Geriatrics
- MEDITECH 6.0 and EMRAM HIMSS Stage 7 – first in Canada and first mental health facility in the world
- 2015 recipient of HIMSS Nicholas E. Davies Enterprise Award of Excellence

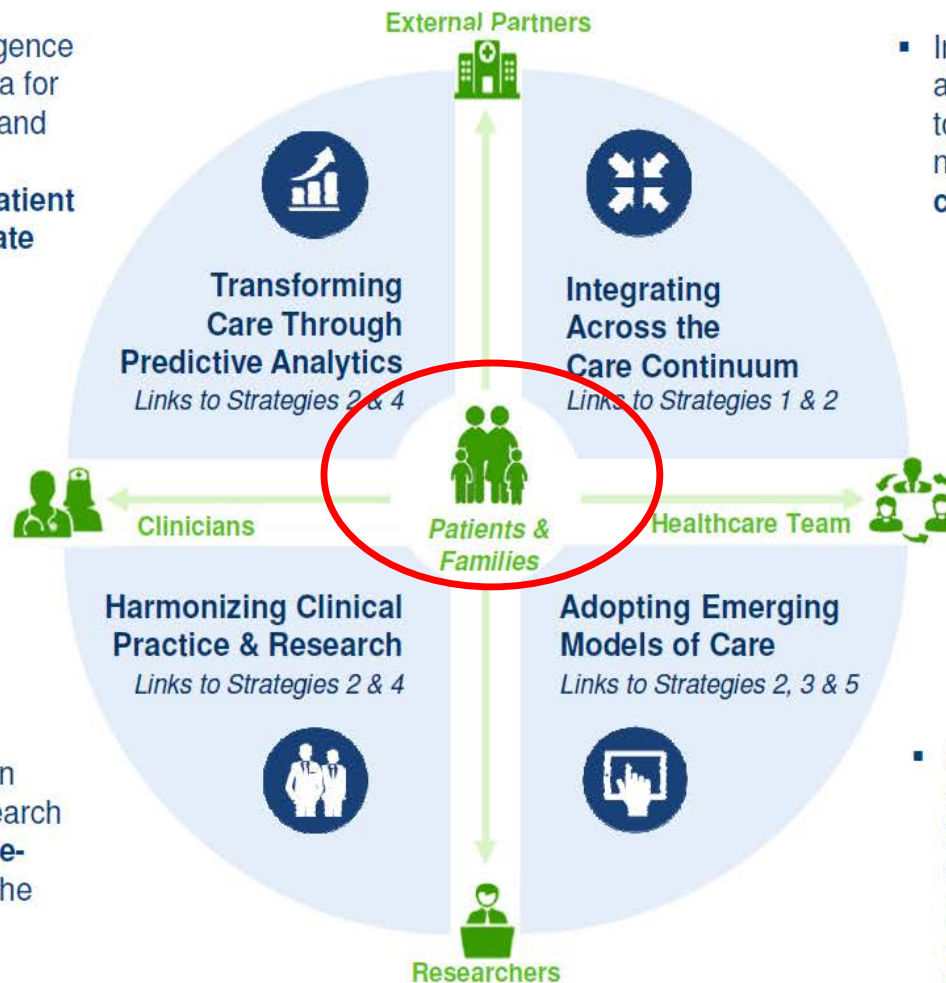


# Ontario Shores' IS/T Plan

- Evolving business intelligence to leverage real-time data for clinical decision making and provide **personalized medicine to improve patient outcomes and accelerate recovery**

ACCESS TO EVIDENCE-BASED CARE AND ACCELERATED RECOVERY

- Bridging the gap between clinical practice and research to **truly deliver evidence-based care**, specific to the mental health patient population



- Integrating with care providers all across the care continuum to help provide better patient navigation and a **seamless care experience**

TECHNOLOGY TO ENABLE CARE DELIVERY AND IMPROVED POPULATION HEALTH

- Continuing to engage staff and patients and supporting the adoption of emerging technologies to **connect patients to new models of care**, thereby providing the **best experience possible**

## The missing dots in Patient Engagement

**68% to 85.3%** of patients do not know the name of the physician in charge of their care.

1

**43% to 58%** of patients do not know the reason for their hospital admission.

2

**90%** of patients who are given a new medication report are never being told of adverse effects of the new medication.

4

**67%** of patients receive a new medication while hospitalized, yet **25%** of these patients are unaware

3

**38%** of patients are not aware of planned tests for the day while hospitalized.

5

Patients are not asked if they have any questions in up to **50%** of office visits.

6

**78%** of patients don't understand hospital discharge instructions.

8

Patients on average miss between **30%** and **60%** of the medication dosages that are prescribed.

7

Nearly **60%** of patients were unable to read and understand a typical informed consent document.

9

An estimated **80%** of serious medical errors involve miscommunication between caregivers when patients are transferred or handed off.

10

Current



Clinical & Passive  
Patient-Generated  
Health Data



Future



Engaged Patient  
and Active Patient-  
Generated Health  
Data



**BEST  
CARE**

Patient-Provider  
Partnership



Ontario Shores

<http://www.himss.org/ValueSuite> Centre for Mental Health Sciences



# Patient Engagement Initiatives

# Patient Portal Implementation

Ontario Shores' **HealthCheck** 

- Aim to:
  - Enhance access
  - Remedy existing gaps related to:
    - active engagement and partnership between patients, families and health care providers
  - Support the paradigm shift towards patient-driven care
  - Evolve current practices and culture
    - from having the provider be the 'keeper of the information' to one where the provider and the patient are partners in care

“  
Patient engagement  
is the blockbuster  
drug of the century.  
”

# HealthCheck – advancing patient engagement



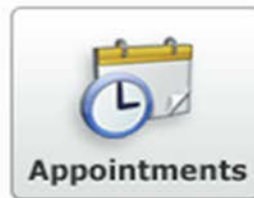
**Messages**



**Health Record**



**Medications**



**Appointments**



**Profile**



**The  
Future**

Messaging functionality allows patients to send any non urgent messages to providers

Display clinical data, including reports, allergies & conditions, labs & microbiology

View medications, education materials and renew medications

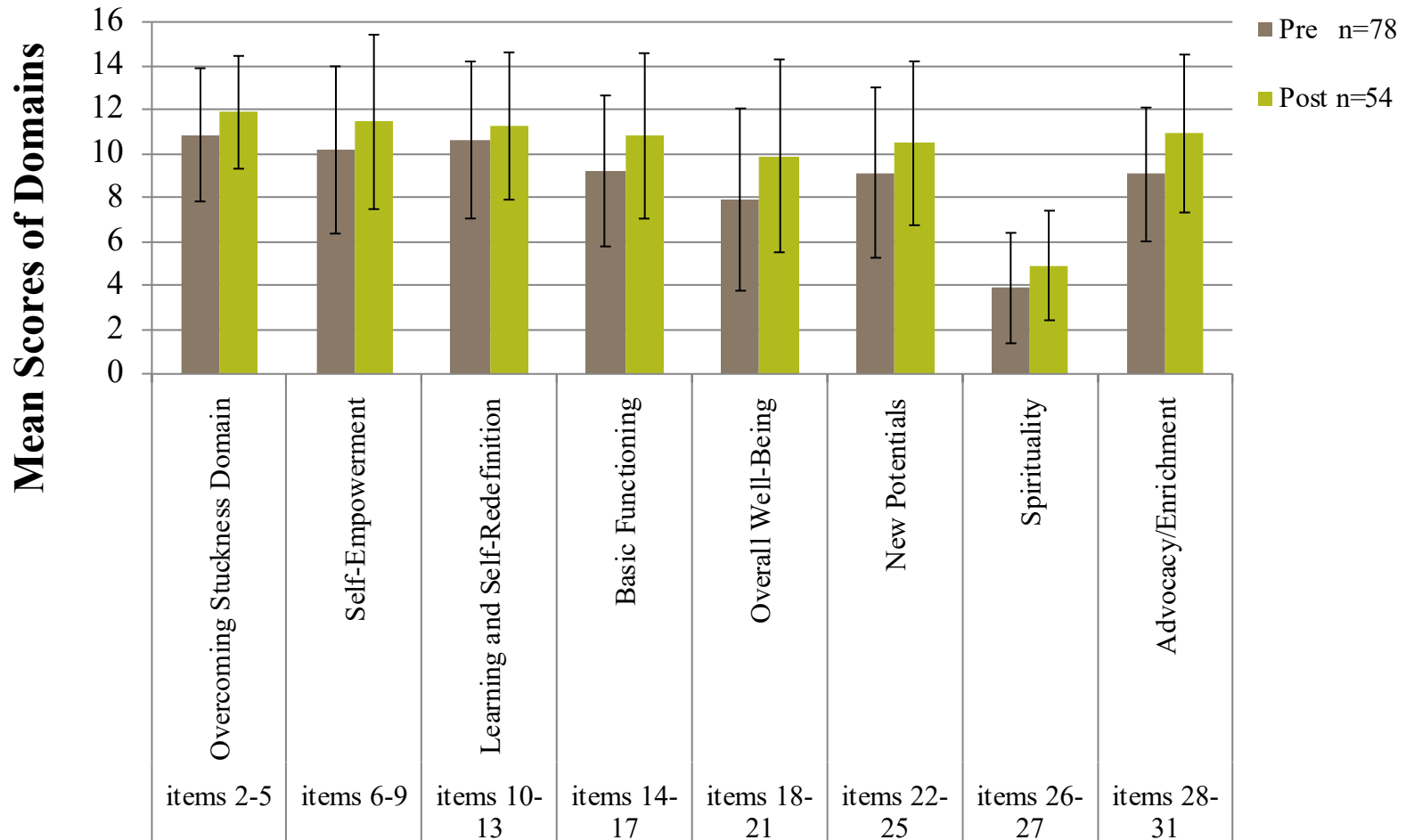
Ability to view all upcoming booked appointments & appointments can be requested, cancelled, & rescheduled directly from the portal

Ability to view & request updates to demographic information

The ability for patients to document within their chart

\*sensitive lab results have been suppressed & reports have a 7-day delay

# Mean Scores of Domains on the Mental Health Recovery Measure at Pre and Post- Enrollment to the Patient Portal





# Treatment/Clinical

## Improved:

- Basic functioning
- Overall well-being
- New potential
- Spirituality
- Advocacy/  
Enrichment

## Decreased:

- Feeling of  
stuckness



Ontario Shores

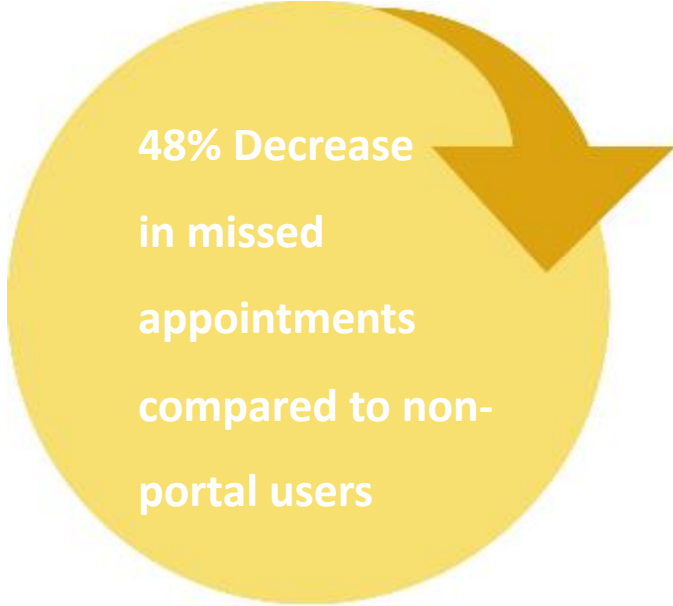
Centre for Mental Health Sciences



# Results: Patient Engagement & Population Management

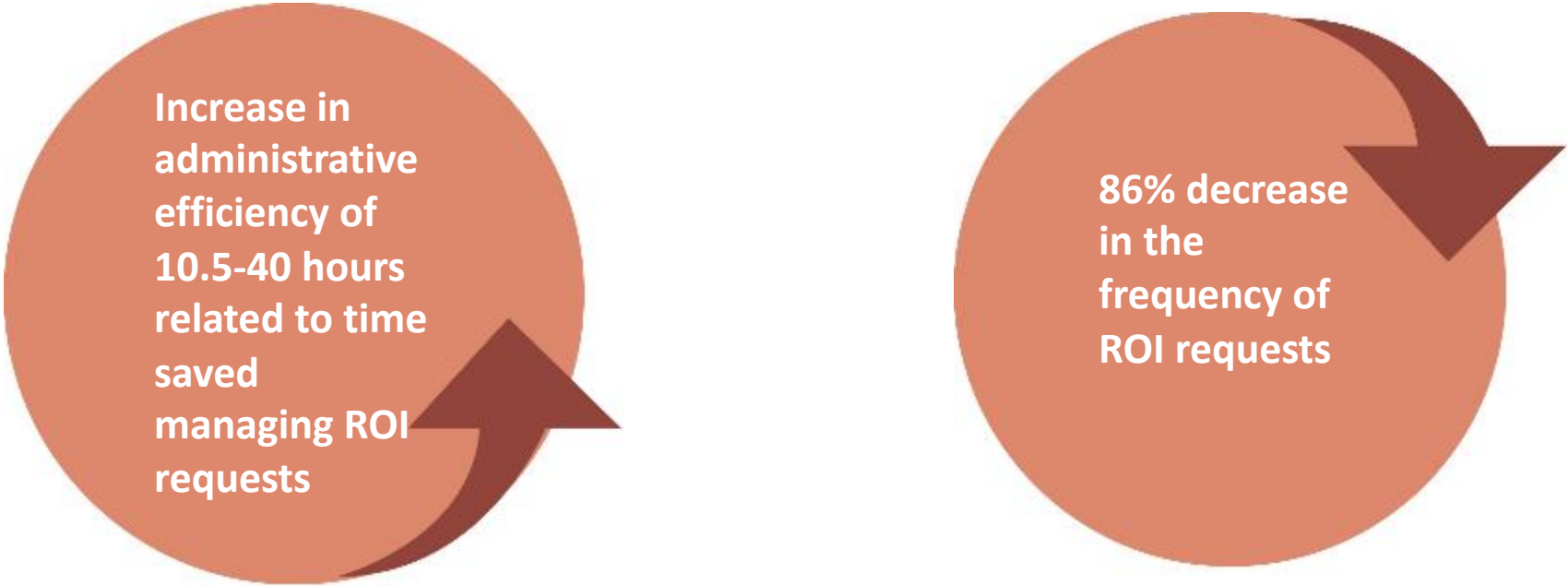


Increased  
Productivity



48% Decrease  
in missed  
appointments  
compared to non-  
portal users

# Results: Savings



Two orange circles are positioned side-by-side. Each circle has a dark red arrow pointing clockwise. The left circle's arrow points towards the right circle, and the right circle's arrow points towards the bottom right. The text is centered within each circle.

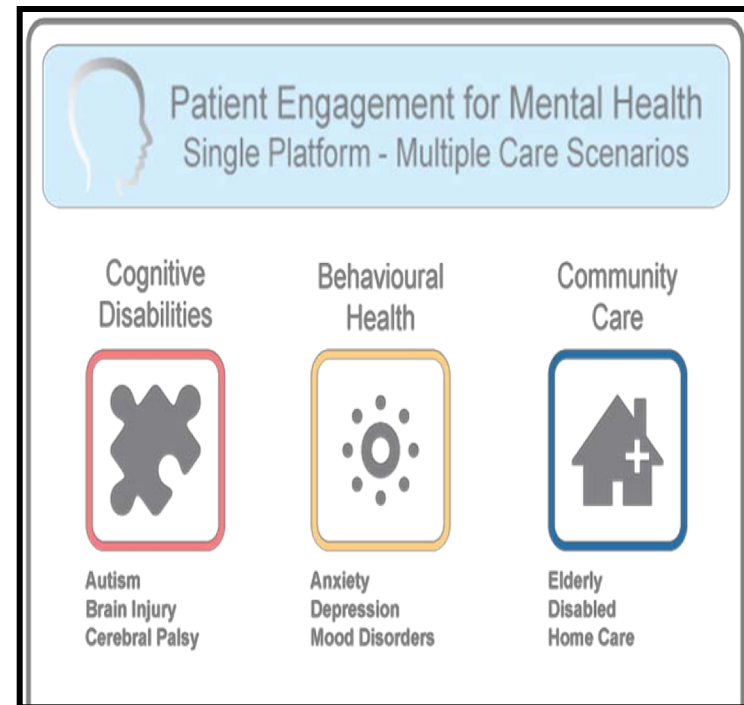
Increase in  
administrative  
efficiency of  
10.5-40 hours  
related to time  
saved  
managing ROI  
requests

86% decrease  
in the  
frequency of  
ROI requests

# Patient Engagement Solutions

## Mobile Health Technology Solution

- Ontario Shores is collaborating with a mobile health patient engagement solution
- Aim is to further advance patient engagement and activation through the implementation of the m-health app which will be integrated with the EHR
- Piloting in four clinical services:
  - Eating Disorder / Geriatric Services / Neuropsychiatry Inpatient & Outpatient / Transitional Aged Youth Services



# Mobile Patient Engagement Solution

Ontario Shores collaboration with Mozzaz for mobile patient engagement

- Interactive interventions and scheduled events
- Bi-directional integration with MEDITECH EHR
- Real-time data collection for reporting and analytics
- 4 services & 2 research projects:
  - Eating Disorder
  - Geriatric Services
  - Neuropsychiatry Inpatient & Outpatient
  - Transitional Aged Youth Services



**mozzaz**  
care everywhere

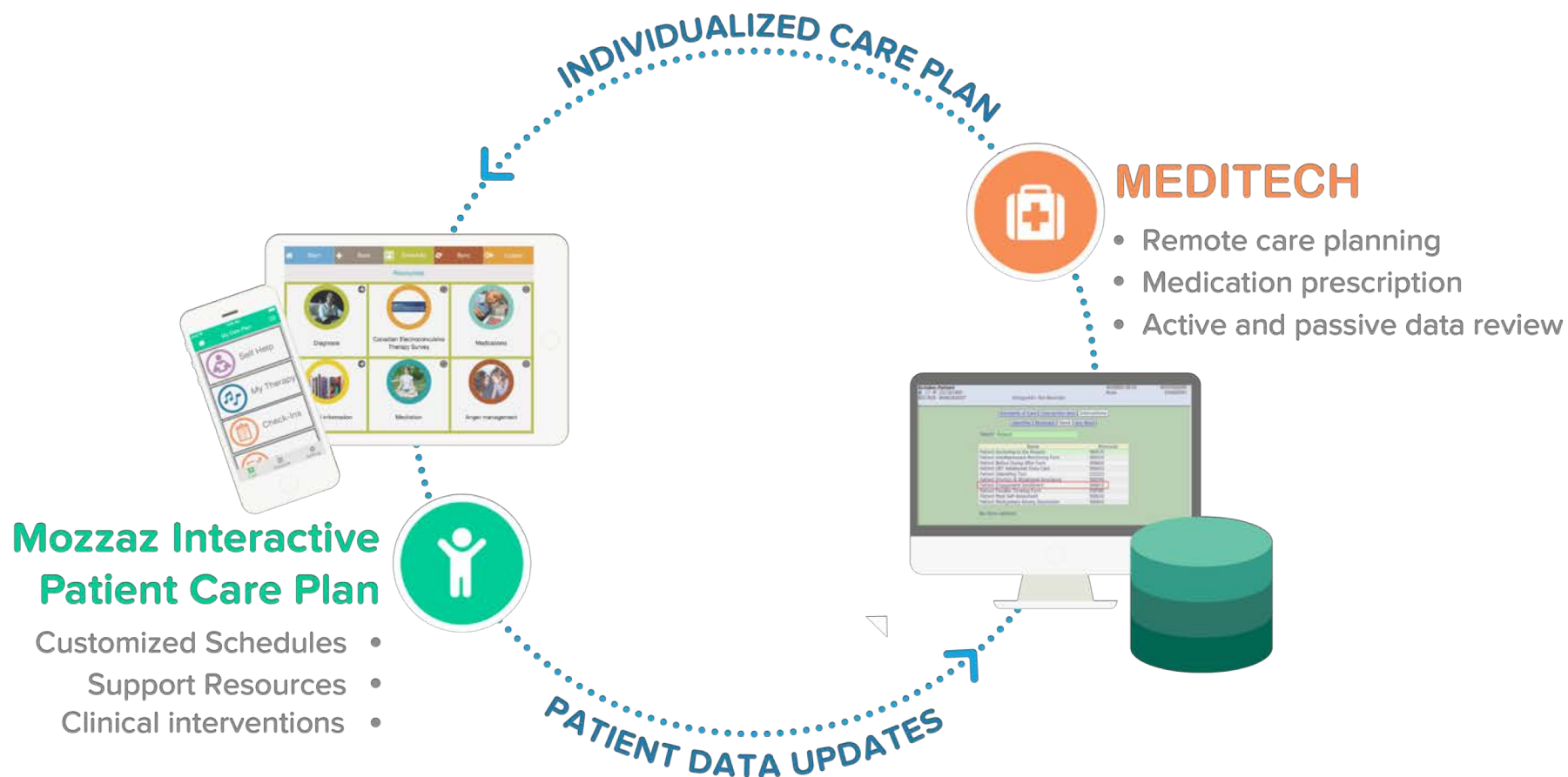
## Mobile Health Technology Solution





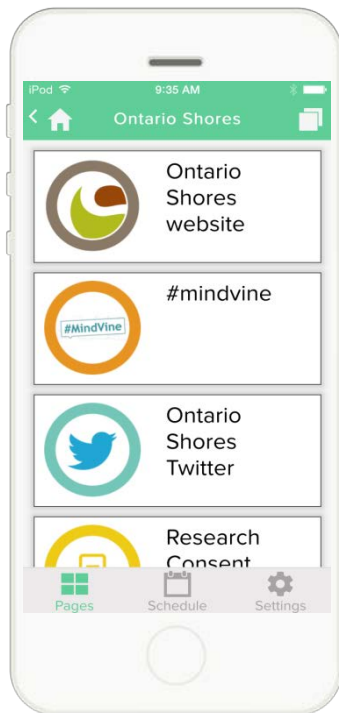
# Virtual Care & Patient Engagement in Mental Health

*Enabling patients and families to become active participants in their mental health care*

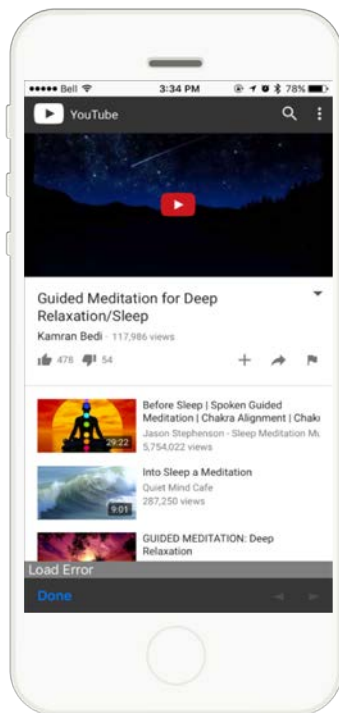


# Content: Eating Disorders

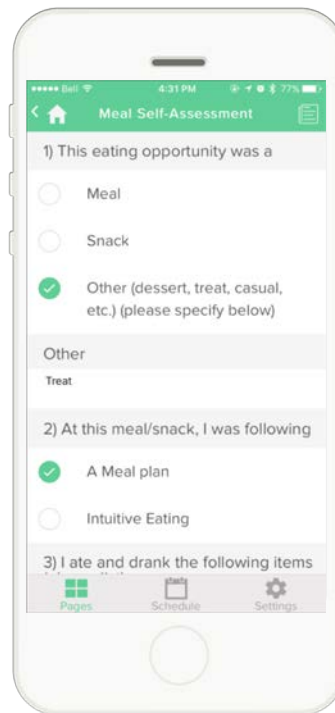
Smartphone application for community based support.



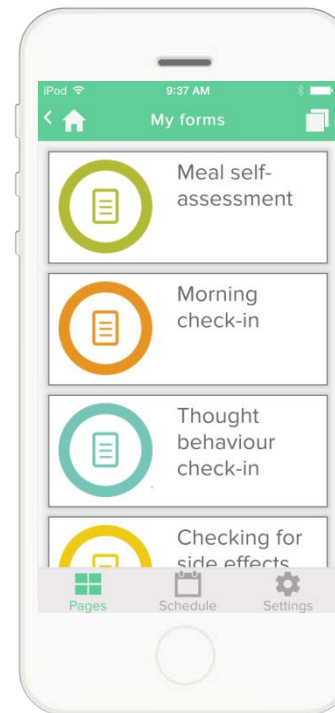
Hospital  
Resources



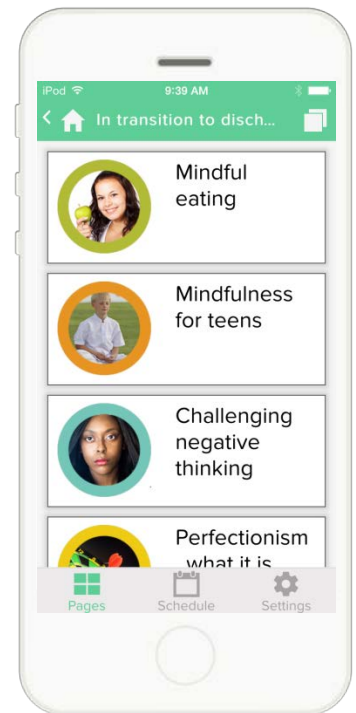
Relaxation  
Exercises



Meal Self  
Assessment



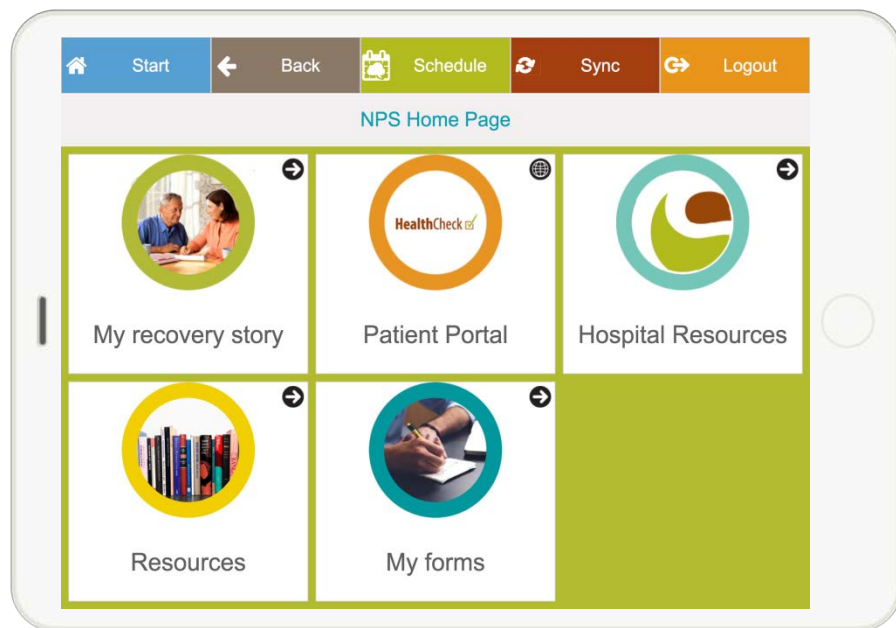
Form  
Interventions



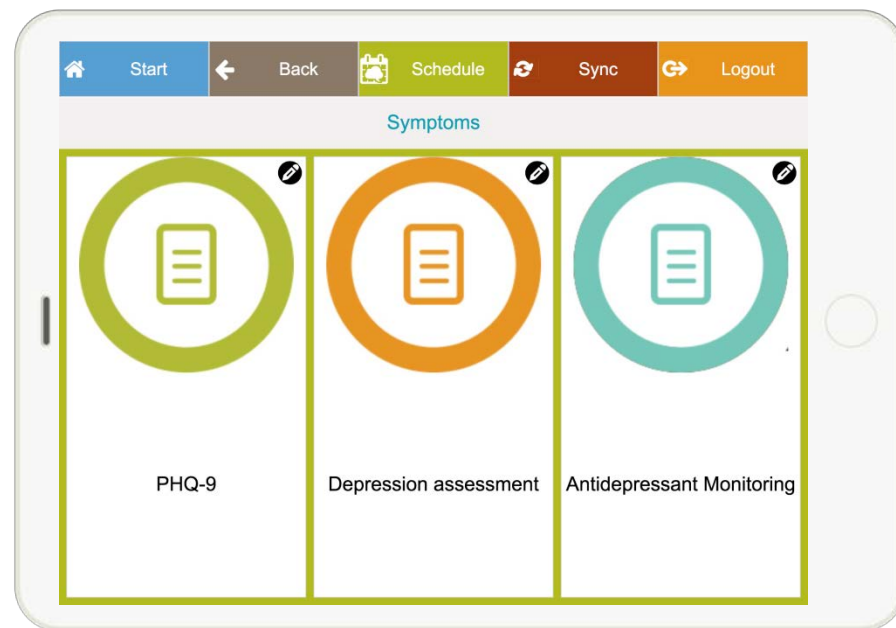
Mindfulness  
Exercises

# Content: Neuropsychiatry

Tablet application for individuals with motor control issues.



Support  
Resources



Form  
Interventions

# Content: Neuropsychiatry

Tablet application for individuals with motor control issues.

The screenshot shows the 'Patient health questionnaire 9' interface. It features a blue header with the title and a document icon. The main text asks, 'Over the LAST 2 WEEKS, how often have you been bothered by any of the following problems'. There are four 'Required Question' items, each with a list of frequency options (0 - Not at all, 1 - Several days, 2 - More than half the days, 3 - Nearly every day). The first question is 'Little interest or pleasure in doing things' with option 2 selected. The second is 'Feeling down, depressed, or hopeless' with option 3 selected. The third is 'Trouble falling or staying asleep, or sleeping too much' with option 1 selected. The fourth is 'Feeling tired or having little energy' with option 0 selected. At the bottom are 'Cancel' and 'Save & Close' buttons.

**Patient health questionnaire 9**

Over the LAST 2 WEEKS, how often have you been bothered by any of the following problems

**Required Question**

Little interest or pleasure in doing things

☐ 0 – Not at all  
☐ 1 – Several days  
☒ 2 – More than half the days  
☐ 3 – Nearly every day

**Required Question**

Feeling down, depressed, or hopeless

☐ 0 – Not at all  
☐ 1 – Several days  
☐ 2 – More than half the days  
☒ 3 – Nearly every day

**Required Question**

Trouble falling or staying asleep, or sleeping too much

☐ 0 – Not at all  
☒ 1 – Several days  
☐ 2 – More than half the days  
☐ 3 – Nearly every day

**Required Question**

Feeling tired or having little energy

☐ 0 – Not at all

Cancel Save & Close

PHQ-9

The screenshot shows the 'History - Patient Story' interface. It features a blue header with the title and a close button. Below the header is a date and time stamp: 'Thu, Jan 12, 2017 | 10:28 AM'. The main content area contains a list of questions and their corresponding answers. The questions are: 'What are your views towards hospitalization and treatment?', 'Where have you lived in the past?', 'Have you ever worked or volunteered? If so, doing what?', 'What are your interests? Do you have hobbies?', 'What are you proud of?', 'Would you like to share your cultural or religious practice?', 'Would you like to share any struggles or challenges?', 'What are your hopes for the future?', and 'What do you see as your...'. The answers are: 'It's great', 'Lakeridge', 'Yes', 'No', 'Family', 'No', 'No', 'No', and 'No'. At the bottom is a 'Close' button.

**History - Patient Story**

Thu, Jan 12, 2017 | 10:28 AM

What are your views towards hospitalization and treatment? It's great

Where have you lived in the past? Lakeridge

Have you ever worked or volunteered? If so, doing what? Yes

What are your interests? Do you have hobbies? No

What are you proud of? Family

Would you like to share your cultural or religious practice? No

Would you like to share any struggles or challenges? No

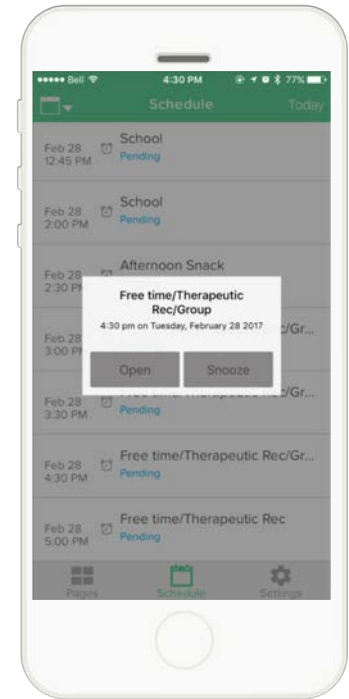
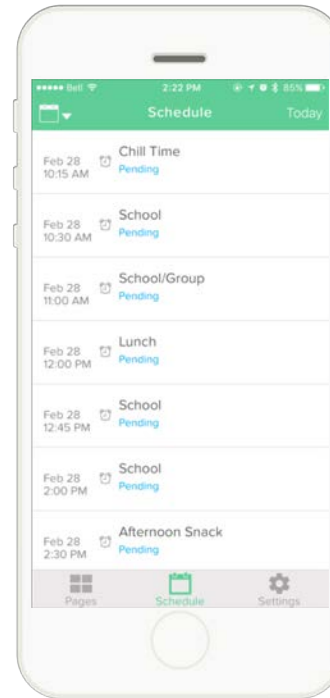
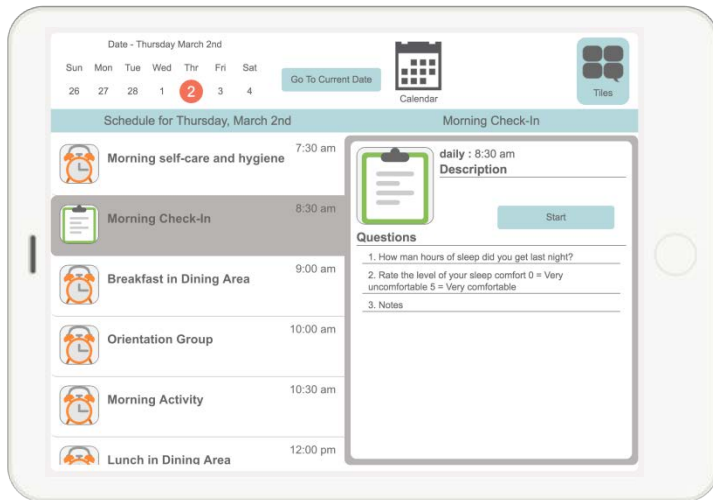
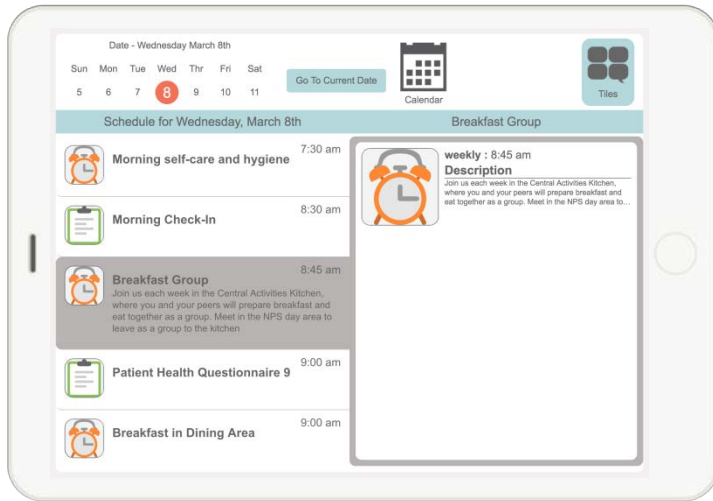
What are your hopes for the future? No

What do you see as your... No

Close

Form History

# Content: Schedules



- Medication reminders from MEDITECH
- Scheduled forms and reminders
- In and out of app notifications



# Project Statistics

- 31 patients
  - Will increase to 75-100
- 300+ interventions completed (as of Feb 10)
  - ~10 interventions/patient
  - Average of 3 weeks of use
- ~25 hours of data entry eliminated (5 minutes per intervention)

# Benefit Evaluation: Saving

Outcome indicators:

- **Increased Efficiency in the Use of Clinician Resources**

- Time studies were conducted pre-go live of the m-health solution to determine the time it takes for clinicians to complete patient assessments such as the Recovery Assessment Scale (RAS-R)
- With the mobile app in place, patients can self-report on these assessments using the application which would then interface with the EHR, saving clinician time that would have been spent completing this documentation
- Savings corresponds to the # of RAS-R assessments completed directly by patients using the mobile app x the time it takes for a clinician to complete the assessment based on the time study



# Treatment/Clinical

**% Patients that had an RAS-R score increase by greater than 5-  
Pre-implementation**



# Benefit Evaluation: Treatment/Clinical

Outcome indicators:

- **Improvement in Recovery Assessment Scale –Revised (RAS-R) Score**

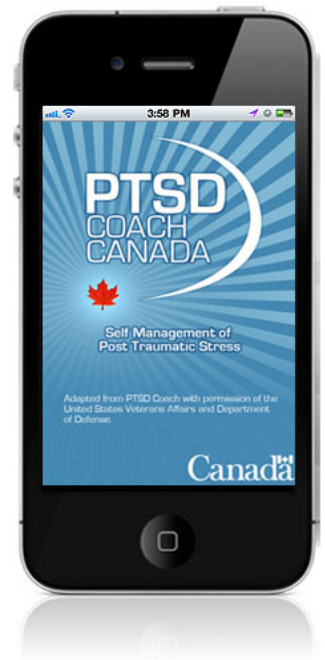
- The RAS-R is a self-reported scale used to measure patients' sense of recovery in five domains including (1)personal self-confidence and hope, (2) willingness to ask for help, (3) goal and success orientation, (4) reliance on others, and (5) life view beyond their symptoms. The tool is used to facilitate collaborative, recovery-oriented practice and measure recovery-focused outcomes over time that will enable clinicians to make data-driven decisions to support care planning and assist patients in formulating recovery-oriented goals

- **Improved Medication Adherence**

- Look at whether medication notifications delivered through the mobile app improve medication refusal/medication not administered rates

# Virtual Traumatic Stress Clinic

- Free Canadian-specific app available for iOS and Android through PTSD Coach Canada
- App is easy to use and is built on CBT principles
- Preliminary research reported user satisfaction, improved symptom control and better sleep (Kuhn E et al., 2014)
- US-based app has research behind it showing utility in both clinician-guided and non-clinician-guided mode (Possemato et al., 2016)
- 60% of users engaged with the app on multiple occasions (Owen JE et al., 2015)

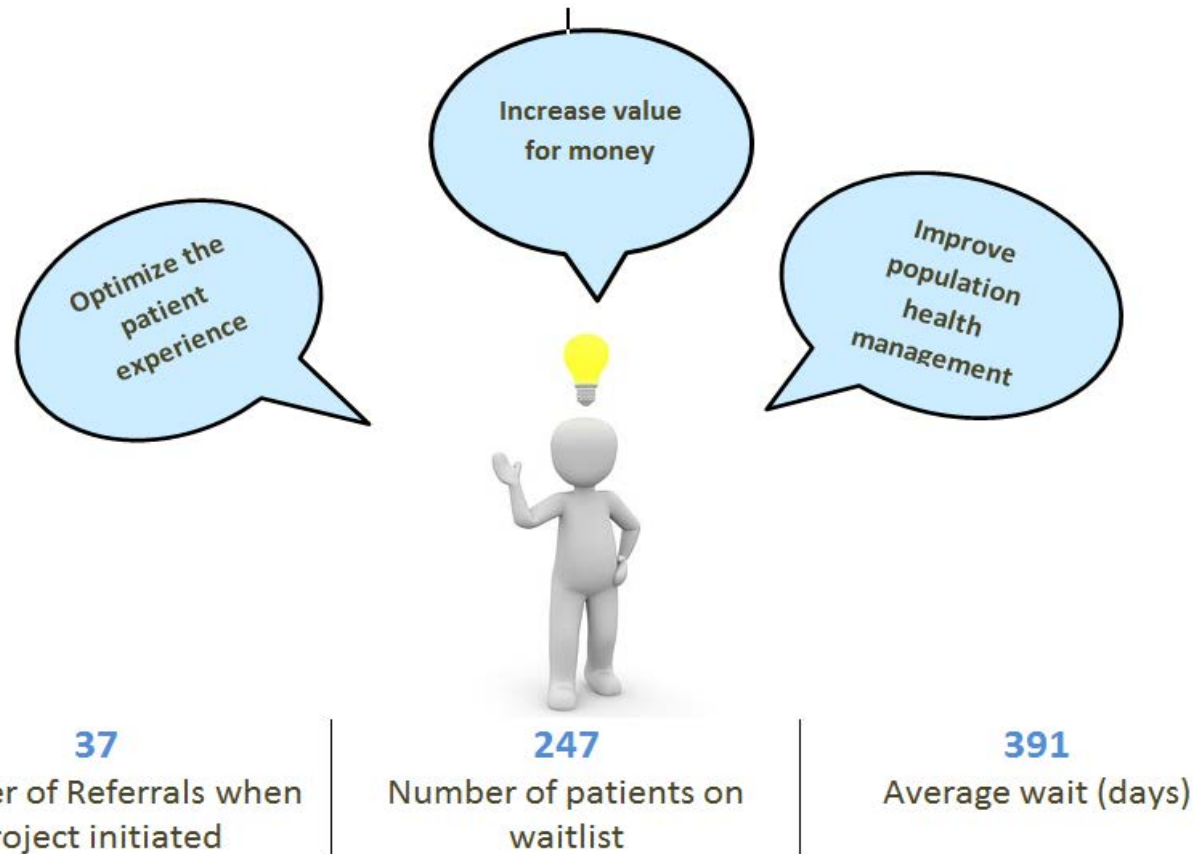




# Virtual Traumatic Stress Clinic

## Opportunities:

- ✓ Maximize Patient Access to Care
- ✓ Increase Efficiency
- ✓ Better Use of Clinical Resources



# Patient Engagement Solutions

## Virtual Traumatic Stress Clinic

Implementation aimed at:

- Reducing wait-times and increasing volumes when used in conjunction with traditional in-person Traumatic Stress Clinic
- Provide insights on how to deliver treatment to significantly more individuals affected by PTSD using same number of human resources
- Opportunity to study use of the app outside of Military populations
- Potential to collaborate with military bases in the future – providing a unique service to the community and a different funding source

# Lessons Learned

# Lessons Learned

## ■ Clinician Discomfort

- Paradigm shift for both patients and clinicians
- Further increasing transparency in practice
- Clinician education and support required to transition documentation

***From:*** Documentation that focuses on sharing information with the treatment team and/or community follow-up post discharge



***To:*** Documentation that is written with an understanding that patients will have greater access to view their PHI, with an aim to increase patient activation in their care

# Challenges

## ■ Functionality Limitations

- Full EHR not accessible through portal system (E.g. Progress Notes are not viewable)
- Ensuring that virtual health solutions are able to interface with the EHR and support the integration of patient-generated data



- Dependant on patient access to and knowledge of technology

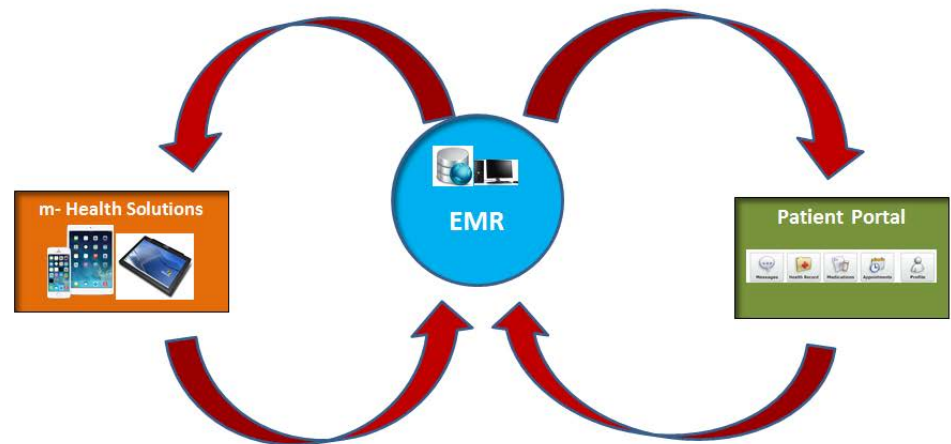


Ontario Shores

<http://www.himss.org/ValueSuite> Centre for Mental Health Sciences

# Lessons Learned

- Proper device selection is key to adoption
- Interoperability
  - Complexity associated with integrating PHI with the EHR and mHealth solutions



# Lessons Learned

- Functionality Limitations
  - Full EHR not accessible through portal system (E.g. Progress Notes are not viewable)
  - Ensuring that virtual health solutions are able to interface with the EHR and support the integration of patient-generated data
- Dependant on patient access to and knowledge of technology





# Lessons Learned

## ■ Solid Change Management Plan

- Ontario Shores utilized Canada Health Infoway's Change Management Framework
- The components of the change management framework are included below.

## ■ Governance & Leadership Endorsement

- Alignment to IS/T strategic plan and corporate goals. Formation of a Steering Committee that includes key stakeholders: Executive Sponsors, Physician Champion, Clinicians, Patient Experience Representatives.
- Strong Senior Leadership Team, Medical Advisory Committee (MAC) and Interprofessional Practice Advisory Committee (IPPAC) endorsement

## ■ Stakeholder Engagement

- Extensive engagement of patients and clinicians throughout all phases of the project to ensure needs are well understood and being addressed.



Ontario Shores

Centre for Mental Health Sciences

# Lessons Learned

- **Communication**
  - Effective communications are key to supporting patients and clinicians
  - Early and ongoing engagement with end-users/clinicians to ensure it is meaningful is vital to success
  - Ensure that communication is around advancing technology to ENABLE practice
- **Workflow & Integration**
  - Engage clinicians and patients to determine current state processes and establish future state processes that will benefit and support these stakeholders

The collage displays various promotional materials for the Ontario Shores' HealthCheck patient portal. At the top, two versions of a 'New Patient Portal' banner are shown, one featuring a woman and the other a man, both with lists of portal features like 'Request Prescription Renewals' and 'Update Personal Information'. To the right is a circular graphic with the text 'Be a partner... Ontario Shores' HealthCheck ...in your care.' Below these are two vertical flowcharts titled 'Enrollment is Easy' that outline the steps for patients to create an account, from providing a patient ID to exploring the portal.

Ontario Shores' HealthCheck branded Posters, Stickers, Note Pads, Bookmarks...

Ontario Shores

Centre for Mental Health Sciences

# Lessons Learned

## ■ Training & Education

- Create training materials with input from patients and clinicians
- Deliver education based on specific needs of the patients and clinicians via various formats, including pamphlets, internal web platform, eLearning, groups, and workshops
- Clinicians working with the patient can support patient and families with use of mHealth solutions

## ■ Monitoring & Evaluation

- Generate reports that will extract information indicated within evaluation metrics, to provide capacity to audit and measure impacts and benefits
- Creating formal opportunities for feedback is critical for adoption and engagement (i.e. change request process)



Ontario Shores

<http://www.himss.org/ValueSuite> Centre for Mental Health Sciences



**Ontario Shores**  
Centre for Mental Health Sciences

*Discovery. Recovery. Hope.*

**Thank You**

# Questions?

Sarah Kipping, RN

Director, Professional Practice and Clinical Informatics

[kippings@ontarioshores.ca](mailto:kippings@ontarioshores.ca)

Wendy Odell

Director, Mental Health – HIS Cluster

[odellw@ontarioshores.ca](mailto:odellw@ontarioshores.ca)



Ontario Shores

<http://www.himss.org/ValueSuite> Centre for Mental Health Sciences