Smartphone–enabled collaborative care for adults over 45 living at home with type II diabetes

- Knowledge Synthesis Training Course
- Wendy Young, PhD
- George Klima, PhD
- Kenny Hammond, BSc
- Gerard Farrell, MD
Outline of Presentation

- Developing the research question
  - First question
  - Linking with CHRSP
  - Finding the team & funding
  - Refining the question

- Developing the protocol
  - Background
  - Objective
  - Methods and search design

- Future Plans
  - Industrial Research and Innovation Fund
  - Randomized controlled trial
The first question

What is the impact of e-health and e-learning initiatives for older adults, caregivers and professionals in rural and remote communities?
Developing the Research Question

Linking with CHRSP

- Contextualized Health Research Synthesis Program (CHRSP)
  - Developed by the Newfoundland and Labrador Centre for Applied Health Research (NLCAHR)
  - Identifies and prioritizes health research questions that are important to health service providers in Newfoundland and Labrador
What is the effectiveness of diabetes collaborative models on population health outcomes?
Developing the Research Question

Bringing together the research team

- George Klima and Gerard Farrell, eHealth Research Unit, Memorial University of Newfoundland
- Kenny Hammond, Research Assistant
- Consulted with Dr. Judith Shamian, CEO, Victorian Order of Nurses and Dr. Jill Hayden, Nova Scotia Cochrane Resource Group
Developing the Research Question

Funding

- Centre for Urban Health Initiatives
- Dr Wallace Ingram Award
Developing the Research Question

What is the impact of smartphone-enabled models of collaborative care for adults over 45 years of age living at home with type II diabetes?
Developing the Protocol

Background – What is type II diabetes?

- A chronic disease
  - Characterized by high blood sugar level
  - Can lead to hypertension, cardiovascular disease, blindness, limb amputations and premature death

- Preventable (Mokdad, 2003)
  - 1.8 Million cases in 2005 (CDA, 2008)
  - More than 60,000 new cases yearly

- The most important epidemic of the 21st century
Developing the Protocol

What is Our Intervention?
Fisher Model

How & where will our intervention work?

Community Resources & Policies

- Community Organizations
- Informal Social Networks

Health System

- Organization of Health Care
  - Self Management Support
  - Delivery Systems Designs
  - Decisions Support
  - Clinical Information Systems

- How & where will our intervention work?

- Community Resources
- On-going Follow-up and Support
- Skills Instruction
- Collaborative Goal Setting
- Individualized Assessment
- Continuity of Quality Clinical Care

- Healthy Eating
- Being Active
- Monitoring
- Taking Medication
- Problem Solving
- Healthy Coping
- Reducing Risks
Improving Efficiency
Smartphone intervention and the collaborative care model

Patient inputs data (e.g., blood glucose level)

Nurse views the data and decides who the patient needs to see. Data is shared with the team.
Developing the Protocol

Why is this review important?

- Informative for patients, health care system and team
- Important to understand for future innovation
- Gap in systematic review literature
  - Group-based diabetes management may increase self management skills (Deakin, McShane, Cade, & Williams) and improved quality of life (Cochran & Conn)
  - We don’t know how best to deploy a smartphone within a collaborative care model
Developing the Protocol

Our objective

To assess the effectiveness of smartphone enabled technological interventions on adults over 45 years old living at home involved in a collaborative care model of diabetes management.
Developing the Protocol

Method – Types of studies and participants for our review

- **Types of studies**
  - Randomized controlled trials
  - Quasi-experimental studies

- **Types of participants**
  - Inclusion: Both genders, living with type II diabetes, at home, 45+ years of age
  - Exclusion: Insulin pump users
Developing the Protocol

Method – Invention and Comparison

- Intervention
  - Smartphone-enabled collaborative care model of diabetes self-management support

- Comparison
  - Collaborative care model of diabetes self-management support
Developing the Protocol

Method – Outcomes

- **Patient**
  - Diabetes self-efficacy, glucose monitoring (glycemic control), communication with health care providers, quality of life, health status, emergency department visits and preventable hospitalization

- **Care providers**
  - Easier access to accurate self-monitored data, communication and satisfaction with communication, appropriateness of medical visits, scope of practice (informatics)

- **Health Care System**
  - Total costs, timeliness of visits, hospital admissions
Developing the Protocol

Search Method and Identification of Studies

- Search Period: January 1992 – November 2009
- Databases: MEDLINE, EMBASE, CINAHL, Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Effective Practice and Organization of Care (EPOC) Group Register, Database of Abstracts of Reviews of Effectiveness (DARE), Ageline, National Research Register
- System for Information on Grey Literature in Europe (SIGLE)
- Conference Papers and internal reports
- References lists of selected studies
- Experts in this field
- Articles will not be restricted by age or publication status
Developing the Protocol

Data collection

- Selection of studies
  - Authors will independently comb the results
  - Disputes will be settled as a team

- Data management
  - Review Manager

- Assessment of risk
  - Using the guidelines provided by the Cochrane Handbook for Systematic Reviews of Interventions
  - Risk of bias will be assessed for generation of allocation sequence, allocation concealment, blinding, incomplete outcome data, selective outcome reporting and other potential threats
Developing the Protocol

Moving Forward

- Registration of topic
  - Completion date: February 2010

- Submission of protocol
  - Completion date:

- Completion of first draft
  - Completion date:

- Completion of Cochrane
  - Completion date:
Future Plans

- Industrial Research and Innovation Fund
  - Submission by Wendy Young and George Klima
- Randomized controlled trial
  - Look for efficiencies, extend to other life-limiting conditions
  - Algorithmic interventions
Thank you!

Questions?
References


