THE UNIVERSITY OF THE WEST INDIES
ST. AUGUSTINE, TRINIDAD AND TOBAGO, WEST INDIES

Mobile DSMS

A Mobile Health System to Increase the Availability of Peer-Support among Persons Living with Chronic-Non Communicable Diseases

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“Developing countries may be experiencing the greatest cell phone impact…….In some countries the number of cell phones in use is greater than the number of people in the country.”

(Ihealthreports, 2007)

Current Situation in the Caribbean

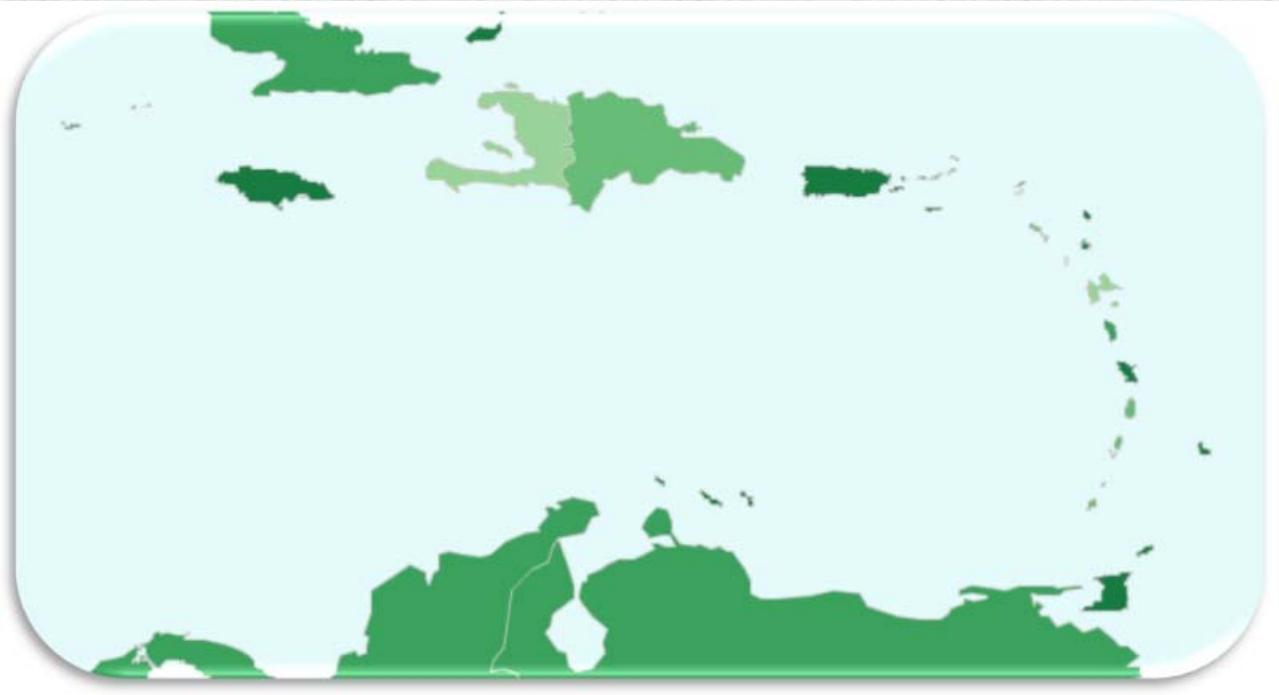


Figure 1. Prevalence Estimates of Diabetes in Caribbean Region in 2011
(*Source: Diabetes Atlas, International Diabetes Federation*)

Trinidad and Tobago -Target Population

- In 2010, the rural population account for 86.10% of total population (approx 1.4 million) in Trinidad and Tobago

  (World Bank, 2011)

- Communications:
  - Land line use : 293,300
  - Mobile Cellular use: 1.894 million

  (CIA Factbook, 2011)

- Reasons for high mobile phone penetration:
  - low-cost handsets
  - rollout of mobile network infrastructure and increased access
  - expansion of network coverage to rural areas
  - cost-effective pre-paid services
  - spending and gain access to flexible, low-cost voice and SMS services

  (UNICEF, 2010)

Mobile Health

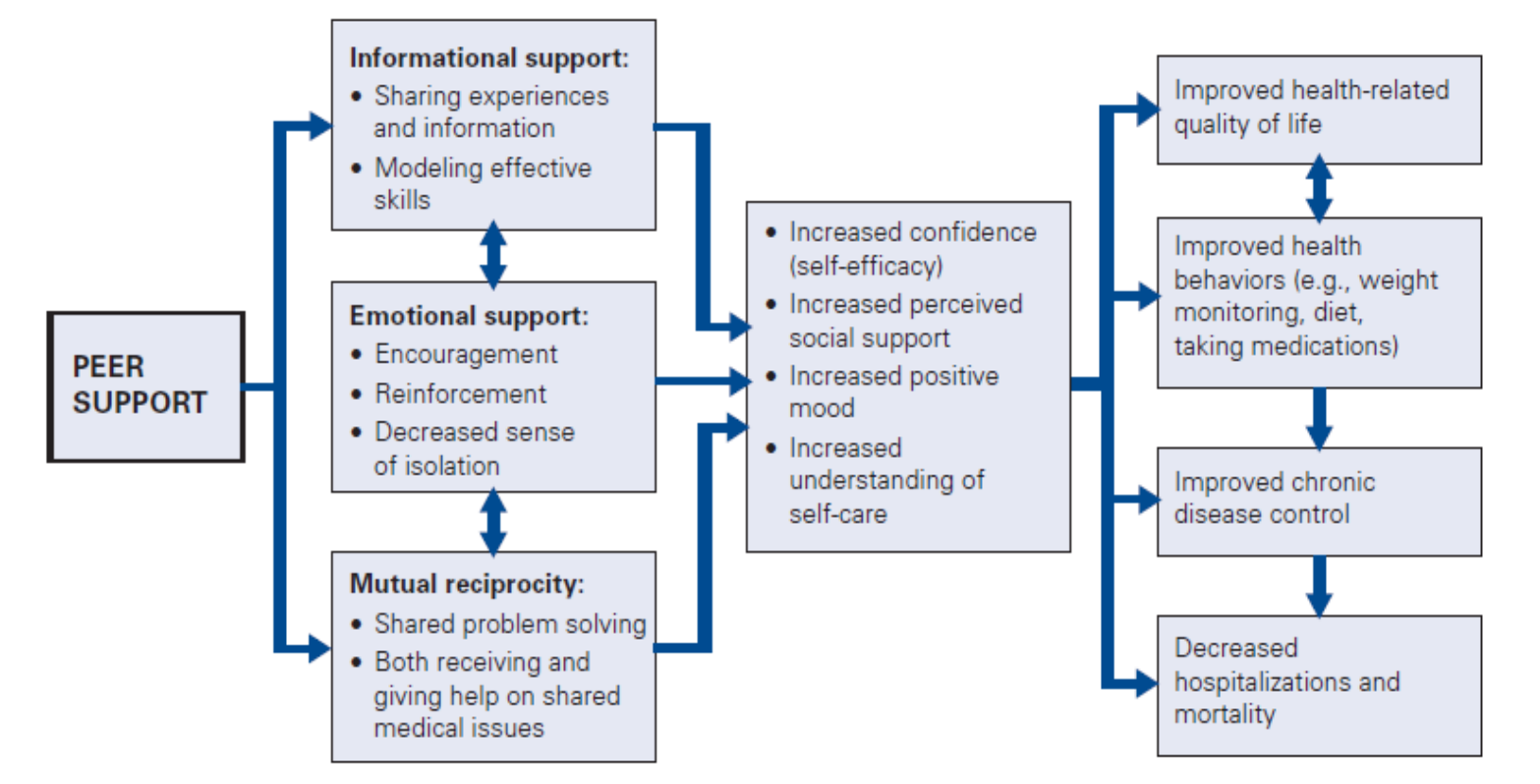
- Definition:

  Mobile health refers to the provision of health-related services via mobile communications

  (mHealth Summit, 2010)

- Related Work:
  - Quinn et al., 2011
  - Cafazzo, 2011
  - Mohan & Sultan, 2009

Peer Support & Chronic Disease Outcomes

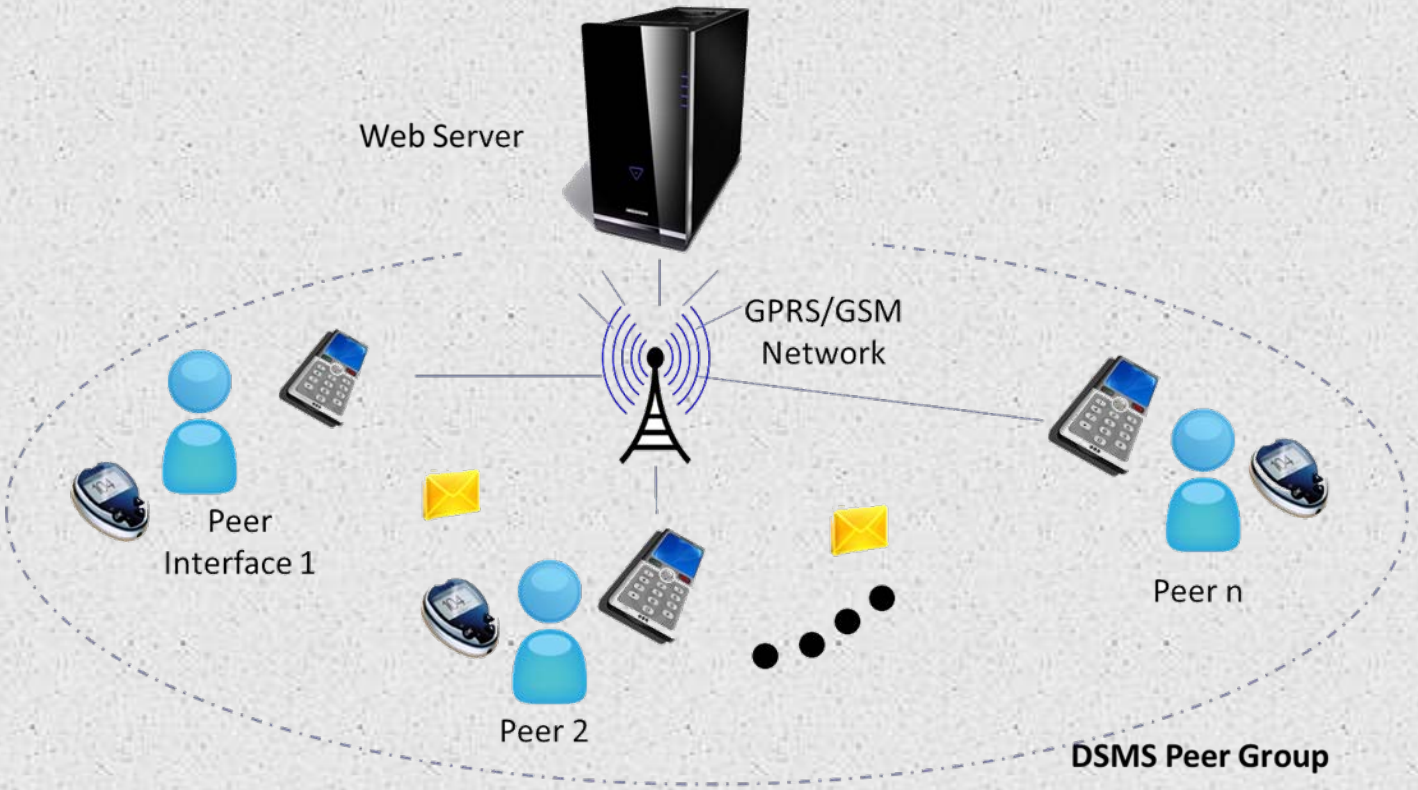


(Heisler, 2006)

Mobile DSMS

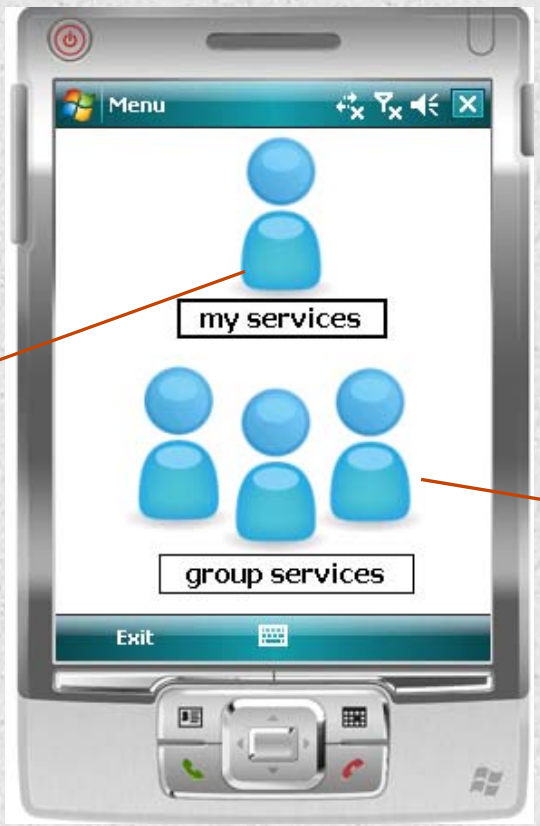
- Mobile DSMS is based on a framework for ***Collaborative Disease Management using Mobile Technologies*** (Sultan & Mohan, 2011)
- It allows users with similar disease management interests to ***virtually gather*** and ***share experiences***, ***ask questions*** and ***provide support*** and ***problem-solve*** remotely through the use of mobile devices.

Mobile DSMS - Architecture



Screenshots (1)

Personal Services Menu



Main Menu

Group Services Menu

Screenshots (2)

Glucose Readings Form

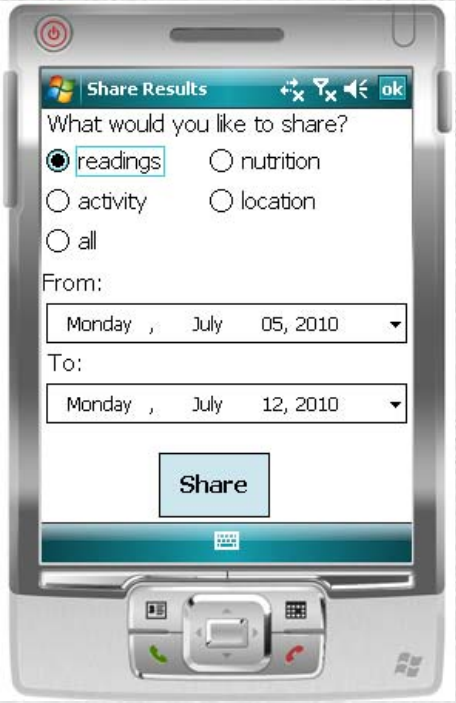
Nutrition Form

Current Location Form

Screenshots (3)

Select Member(s) Form

New Message Form



Add ODLs Form

Focus Group

- In January 2012, a focus group was held to obtain preliminary feedback on the system concept and the mobile application design:
  - No. of participants:
    - 21 (patients (16) caregivers (5))
  - Age: 36 - 66yrs
  - Gender: male (10) female(11)
  - Ethincity: afro-trinbagonian (7) indo-trinbagonian (13) mixed (1)
  - No. enrolled in a support group programme : 0

Results(1)

- Focus: Willingness to use the system
- Responses:
  - Yes, people do this now…when you discuss these things with others, it feels good
  - Yes, my friends already help me ….they tell me what to eat to feel better
  - Yes, people should start doing this
  - Yes, there is a support group at my clinic but I cannot attend because of personal family commitments
  - Not sure, not familiar with this phone

Results(2)

- Focus: Suggestions to improve the system
- Responses:
  - For persons who are vision impaired…how will this be handled?
  - Is this system available for regular ('me-too') phones?
  - Having access to an existing diabetes library
  - Including more community visits
  - A lot of information already provide…better to keep the system simple
  - I will like to see some interpretation of the results

Next Stage

- Three month trial:
  - 30 type II diabetics:
    - 15 experiment - receive Mobile DSMS application designed by researchers at the University
    - 15 control - receive DSMS through their primary diabetes care in a clinical setting or community setting
- Objective:
  - to determine the effectiveness of CDM using Mobile Technologies
- Limitations of Study:
  - Time period may be to short; may not obtain any observable effect in less than 2 years
  - Sample size is too small; it is necessary to have a validation with a large group
  - Other factors that may influence study: time of year, prior DSMS efforts etc.

Main Outcomes

Knowledge	Health Status	Social Outcomes	System Usage
Did the user's overall knowledge of the subject matter area increase?	Did the user's overall health improve?	What type of community structures were formed? Did they feel part of a group?	What features were most effective in achieving the system's objective?
Diabetes knowledge questionnaire	AIC Test	Activity Logs , Direct Observation, Focus Groups & Post User Interviews	
MT is (not) effective as a medium for delivery of health svs	MT svs is (not) effective in improving PT health	MT svs is (not) effective in forming support groups	MT feature(s) are (not) effective achieving objectives

…….for more information visit *www.salys.org*