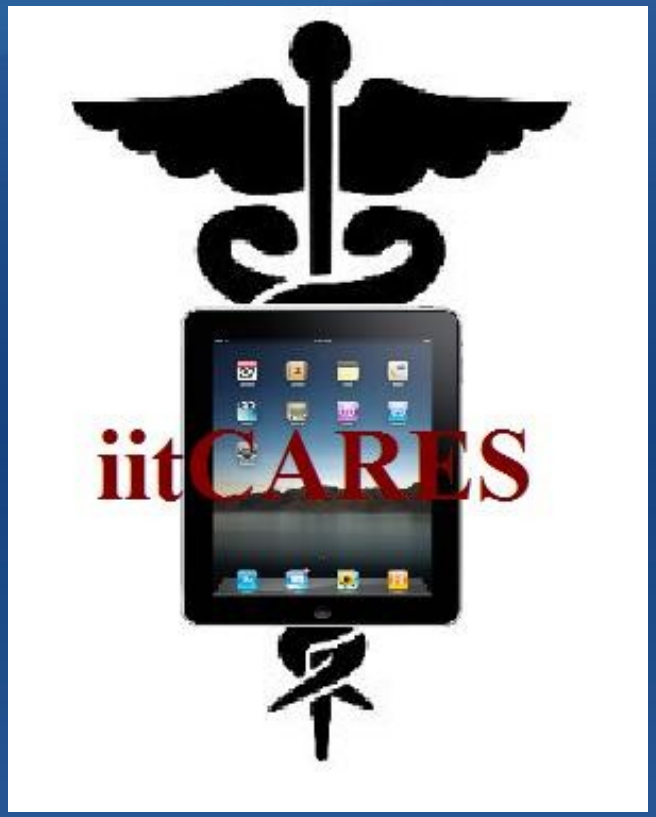
IIT C.A.R.E.S.



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Diabetes

- An estimated 285 million people, corresponding to 6.4% of the world's adult population, will live with diabetes in 2010.
  - 25.8 million children and adults in the United States—8.3% of the population—have diabetes.
- Diabetes was the 5th leading cause of death in 2005
- Diabetes costs $185 billion dollars in 2010 (U.S.)
  - 2/3 of this cost is for in-patient care
- Patients can monitor diabetes treatment by periodically checking their blood glucose levels

Mount Sinai Hospital

- Mount Sinai Hospital is located on the west side of Chicago
- The hospital facilities include a main building and a rehabilitation center
- Approximately 600 beds
- It primarily serves underprivileged patients in the surrounding community

The Problem

- Telemedicine allows patients to send glucose readings to doctors via mobile devices
- IIT C.A.R.E.S. is collaborating with Mount Sinai hospital to decrease the costs and increase the quality of care for diabetes patients
- Target audience are underrepresented and low-income patients of Mount Sinai Hospital

Organizational Structure

First Phase Objectives

1. Study the feasibility of implementing mobile devices
   - Clinical Path
   - Administrative Path
2. Research recent technological developments for monitoring of chronic diseases
3. Utilize all team members skills

Clinical Path

- Research various medical devices to collect blood glucose readings and transmit to Mount Sinai
  - Investigated stand alone devices and also mobile phone applications
- Criteria:
  - Easy to use interface
  - Automatic transmission
  - Online database
  - Measures other vitals

At Home Care

At Home Care

Mt. Sinai Hospital

Blood glucose device confirms reading to patient

Patient enters data into mobile phone application

Vitals transmitted to DESC

Clinician provides feedback to patient

Glucose device automatically collects vitals

Patient measures vitals

Blood Glucose Devices

Devices	HealthPal	Glucotel	Telcare	Bayer Contour USB Blood Glucose meter
Features				
Measures other vitals	✓	✓	✓	✗
Under 3 clicks	✓	✓	✓	✗
FDA approval	✓	✓	✗	✓
Online database	HealthCOM	BodyTel Center	MyTelecare	Glucofacts Deluxe
Data availability	Patients & Clinician	Patients & Clinician	Patients & Clinician	Patients
Our Choice	**1**	**2**	**3**	**4**

Mobile Phone Applications

APPS	Glucool	Log for Life	Glucose Meter	Glucose Buddy
Features				
Platform	Android	iOS	Android	iOS
Online Database Sync	✓	✓	✓	✓
Auto-Sync with Blood glucose meter devices	✗	✗	✓	✗
Under 5 taps (to add data)	✗	✗	✓	✓
Other features (++++)	✓	✓	✓	✓
Our choice	**4**	**3**	**1**	**2**

Vendors

GE Healthcare

aprima
Fusing innovation and care

eClinicalWorks

athenahealth

EMR / PMS
MDCARE

AGFA
HealthCare

Agfa

dossia

SIEMENS
medical

User Needs

Product Concept

DECS: Diabetes Electronic Support Center

Communication and Access to information

Clinician – Clinician Communication

- Establishes a clinician network
- Exchange information with other healthcare facilities
- Better patient diagnosis

Clinician – Patient Communication

- Comprehensive patient data
- reduce visitation cost and time for patients
- Better patient diagnosis

Patient-Relatives Communication

- Establish familial support network
- Delivering positive reinforcement

DESC Outline

At Home

Mount Sinai Hospital

Patient measures vitals

DESC

Vitals logged into patient record

System evaluates data

No danger alert

Alert patient of danger

Administrated by a clinician

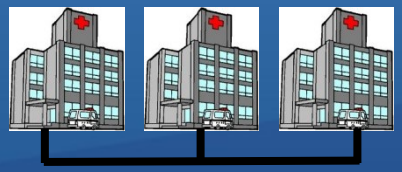
Health Servers

	DESC	Google Health	Cerner	Atrius	Versus
Simplify & Manage Official Medical Records	✓	✗	✗	✗	✗
Simplify & Manage Medical Information	✓	✓	✗	✗	✗
Connect Patients to Clinicians	✓	✓	✗	✓	✗
Connect Clinicians to Clinicians	✓	✗	✓	✗	✓
Home Access of Medical Information	✓	✓	✗	✓	✗
Remote Patient data tracking	✓	✗	✗	✗	✗

Demo

- www.wix.com/hmichae2/DESC

Overall Vision



Allow for medical records to be mobile and transferable

Diabetes Electronic Support Center (DESC)

Create and effective Network of Doctors

Allow to accurately transcribe patient medical records for patient

Allow to effectively track patients

HOSPITAL SERVER

Integrate with Hospital's existing EMR database

DESC outcomes

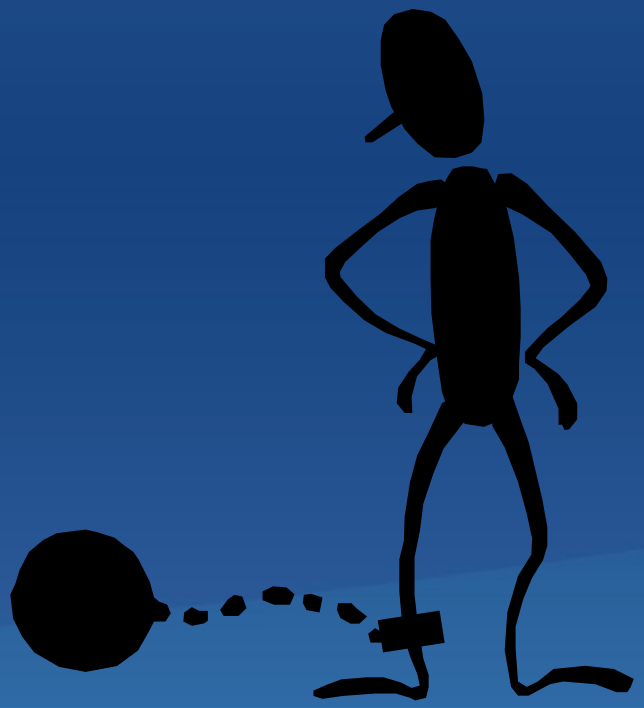
- Reduction in hospital visits by diabetic patients
- Cost reduction in diabetes treatment
- Improved quality of care
- Increased communication between clinician and patient
- Shift from paper records to electronic medical records

Ethics

- Started IRB requirement
- During the course of this IPRO, students will follow HIPAA policy to ensure privacy and security of patient information
- The Belmont Report
  - Respect for Persons
  - Beneficence
  - Justice

Obstacles

- Unable to meet with Mount Sinai Hospital during the summer 2011 semester
- Small group size
- Large amount of research
- Limited amount of time



Accomplishments

- Acquired knowledge about basic healthcare technology management for chronic diseases
- Solid foundation for Fall 2011 IPRO
- Completed project ethical evaluation
- Work in a multi-disciplinary team

Future of IIT C.A.R.E.S.

PHASE 1 – Summer 2011

- Research available technologies

PHASE 2-Fall 2011

- Interview Mount Sinai administrators
- Perform trial experiment of chosen device to a group of 25 diabetic patients

PHASE 3-Spring 2012 to Summer 2012

- Implement diabetic support center at Mount Sinai
- Administer devices to Mount Sinai diabetic patients

Citations

- http://www.medapps.com/HealthPAL.html
- http://www.bodytel.com/en/patient/products/glucotel.html
- http://www.telecarecorp.com/
- http://bayercontourusb.us/
- http://www.glucosebuddy.com/
- https://sites.google.com/site/glucosemeterandroid/home
- https://www.logforlife.com/
- http://www.glucool.com/

Questions?