In Three Years

From 2008 To 2011
The Story of Transition

Clinical

- 2007-2009
  - Paper based patient charts.
- 2009
  - Implementation of Cerner Millennium Electronic medical Record.

Research

- 2007-2008
  - Excel
- 2008-2009
  - Access databases (local)
  - Databases shared over network.
- 2009
  - In-House development of Web-based application for electronic data capture.
- 2010
  - Development of Web-based plug-in for mobile / handheld devices and real-time analysis.
- 2012
  - Joining RedCap open source Consortium
At Children's Cancer Hospital Egypt (CCHE) 57357, each individual pediatric malignancy is managed through a Disease Strategy Team.
• The complexity of care and the interdependence of different disciplines required an implementation of a Hospital Information System that served only the clinical needs.

• Hospital Electronic Medical Record System

• Monitoring of treatment protocols as well as real-time follow-up were necessary to fulfill research needs and longitudinal outcome assessment.

• Research Information System (Our discussion today)
Action

• We started to develop our own system for covering above mentioned issues
System Objectives

• Ensuring that patients are accurately receiving their assigned protocol-based treatment.

• Monitoring and reducing protocol violations.

• Real-time data validation and statistical analysis.
Methodology

- Our team started with Brain Tumor Database as a Pilot Project, followed by the rest of pediatric malignancies.


- We Took into consideration the HIPAA recommendations and the FDA - Code of Federal Regulations' requirements.

*HIPAA: Health Insurance Portability and Accountability Act*
Analysis

- Define Scope, Analyze user needs and create a detailed Functional Requirements Document.
Our system requirements

Analysis phase
I. Treatment Related Requirements
II. Research Related Requirements
Treatment Related Requirements

• Standard treatment Roadmaps needed to be monitored at pre-defined protocol milestones in order to minimize protocol deviations and violations.

• The Healthcare team needed a Central Protocol and Roadmap repository to avoid the use of outdated versions.
Research Related Requirements

- **Semantic/structured**: The Hospital’s EMR provided built-in templates for Clinical Documents that served clinical but not research needs, especially in case of unstructured free text entries. (e.g. Pathology Reports)

- **Scheduling/Milestones**: The EMR was not designed to capture data at specific treatment milestones. Data retrieval was not feasible in the format needed for outcome analysis.
Managing research data while keeping a simple, user friendly interface was a challenge and a motive to develop the monitoring solution.
Design

- Transform detailed Requirements into complete detailed System Design Document.
Development

- HIPAA* compliant, Secured and Role Based Application.
- The solution allowed accessibility to researchers' friendly views of patients' data.
- Being developed "In-House", the system was cost effective and tailored to CCHE's needs.

*HIPAA: Health Insurance Portability and Accountability Act
Results

• Implementing Research Systems can start before electronic clinical systems.
• This implementation preferably can be lead by medical personnel with IT background and can be conducted by them leading to faster analysis, development and evaluation phases.
• Suggested IT knowledge: Systems Analysis, Database design and any Programming language.
• If you’ve the will and desire you can implement it within one year (even in developing country).
• Integration of research system can result in improving clinical system.
**Recommendations**

• We recommend using web based settings, with the advantages of ease of access and maintenance.

• The developed system can be easily applied in the course of management of other chronic diseases.
Future perspectives

• Integrating bio-banking and translational research.
• Bio-informatics.
• Web-services to talk with other applications.
The Developers

From the Left:

-Mohamed Kamal, R.Ph.
   Clinical Pharmacist

-Ahmad Samir, M.D.
   MSc. Ophthalmology

-Mohamed Sabry, M.D.
   MSc. Clinical Research
Other Team Members

- Dr. Sherif Abouelnaga, M.D.
  *Pediatric Oncologist*

- Hatem Hosni, M.D., M.Sc
  *Cardio-Thoracic Surgeon*

- Omneya Hassanain, BCOP
  *MSc. Clinical Pharmacy*
mohamedkamalpharm@gmail.com
asamir@57357research.com
msabrybakry@gmail.com

THANK YOU