Using Patient Centered Technology to Enable Emergency Preparedness

Munish Khaneja, MD MPH
Chief Medical Officer, MediModules, Inc
Assistant Professor, Departments of Medicine and Pediatrics
SUNY Downstate Medical Center, Brooklyn, New York
Summary

- What Information is Needed
- Current Model of Information Gathering and Retrieval
- The Issues
  - Privacy
  - Security
  - Accessibility and Portability
    - Interoperability
- Patient Centric Definition
  - Patient Centric Technology
- Applying This in Emergency Preparedness
Disclosure

- CMO and Principal
  - MediModules, Inc.
Emergency Preparedness

-The Emergency Responder needs three things:
  - Quick access to the medical information
  - Delivery of information by trained professionals
  - Up-to-date information

AHIMA: http://www.myphr.com/your_record/why_start.asp
What is the most vital information?

- Name
- Date of Birth
- Medications
- Allergies

- Other information that “would be nice” – beneficial but **not** required for emergency situations
  - Problem List (Diagnoses)
  - Blood Type
  - Next of Kin/Emergency Contact (Name and Contact)

-Rob Brouhard, Director of the Paramedic Training Program
California State University, Stanislaus (2006)
Current Methods of Gathering Information: Limitations

- **Paper**
  - Static – facility-centric
  - Often is not updated regularly

- **Verbal**
  - Asking the patient usually does **not** work
    - At least a 30% variance exists between what the physician prescribes and what the patient/family recalls ([www.IHI.org](http://www.IHI.org))

- **Electronic**
  - Also usually facility-centric
  - Unable to be updated by multiple providers at different facilities

© 2007 MediModules, Inc.
What goes into the Perfect System?

- Privacy
- Security
- Accessibility and Portability

Additionally:
- Interoperability
Privacy

The Commandment:
Thou shan’t pry into others’ PHI

Definition:
• Privacy is based on the societal expectation that we are ethically bound to safeguard Personal Health Information (PHI)
• It is needed to maintain the patient-provider trust – any information given out must be authorized, either implicit or explicit
• HIPAA made this ethical requirement into law with the specific application to PHI

Examples are:
• Allow access only to other providers that are actively caring for the patient
• Electronic: maintaining a password that is not given out
Security

The Commandment:
Thou can’t pry into others’ PHI

Definition:
- Protection of privacy and confidentiality through a collection of policies, procedures and safeguards (Shortliffe, 2006)

This is required whether the system is electronic or paper

Examples are:
- Role-based access (nurse vs. provider)
- Websites: Secure Socket Layer (Encryption)
Method of storage can affect security

- USB versus web-based Personal Health Records (PHR) were compared in terms of security
- 5 of the major USB-based PHR’s were tested – all were “hacked” to automatically access secure information on the physician’s computer and surreptitiously copy this data to the flash drive

Alternatively

- The web-based PHR’s were not able to be accessed in the same manner

(20 Feb 2007 Ann Int Med 146:4)
Accessibility and Portability

- System must be accessible from as many locations as possible
  - Paper: stored at one single location
  - Electronic: only a few have web-access – most available only at the facility

- Other options is that the system travels with the patient
  - Can travel in the form of paper or “electronically”
    - MyMediList’s MediWallet
    - USB-based personal health record
Interoperability

- In the most functional of systems, the information should interact seamlessly with the other systems.

- Currently, standards are in existence to help that to happen:
  - General: XML and HL7
  - Pictures/Radiology: DICOM
  - E-Prescribing: NCPDP

© 2007 MediModules, Inc.
The Ideal Path of the Patient

- Patient enters Facility
- Registration
- Patient Medical Record
- Doctor's Visit
- Discharge from Facility
The True Path of a Patient

Emergency Room at Facility #1

Primary Care at Facility #2

Along the way, 4 meds added
2 taken away
Patient unsure of what to take

Rehabilitation Care at Facility #3

Radiology at Facility #4
Interoperability

Where does the patient fit in all this?
Patient-Centric: Definition

- Shortliffe’s *Biomedical Informatics* (3rd Ed)
  - No definition of “Patient-centric”

- We must look to the literature, government and industry to come up with a definition
Patient-Centric: Definition

- **IOM** ([www.iom.edu](http://www.iom.edu)):
  - "care that is respectful of and responsive to individual patient preferences, needs, and values"

- **AHRQ** ([www.ahrq.gov](http://www.ahrq.gov)):
  - "patients become active participants in their own care and receive services designed to focus on their individual needs and preferences, in addition to advice and counsel from health professionals."

- **AAFP** ([www.aafp.org](http://www.aafp.org)):
  - "treating patients as partners, involving them in planning their health care and encouraging them to take responsibility for their own health."

Applying this in the digital world:

- **IBM** *(Health IT Summit, 2006)*:
Interoperability in the Patient Centric Model

The patient can view, edit and add to their healthcare information.

Patient-Authorized

Emergency at Facility #1

Primary Care at Facility #2

Rehabilitation Care at Facility #3

Radiology at Facility #4
Patient Centric: Is it Important to the Patient?

Markle Foundation (2006):

- Survey of 1,000 Americans
  - Over 95% of respondents said that doctors and individuals should have access to all of an individual's medical records.
  - 66% wanted to have access to their own records electronically.

- Interestingly
  - 80 percent were concerned about identity theft and fraud and that their information could be used without their permission.
  - About 75 percent said they felt that the government should help establish privacy and confidentiality standards for electronic health information.
Patient-Centric: Models

- **Some models**
  - **Viewing the information**
    - patients having access to information but no ability to edit, no communication
      - Group Health, Incorporated
        - [www.myGHI.com](http://www.myGHI.com)
  - **Storing the information (web-based)**
    - Patient controlled access to the information, acts as a storage portal for various aspects of medical care
      - LifeSensor
  - **Interactive Patient and Provider**
    - Information is under the patient’s control, but the provider can access and update the information with 2-way communication
      - Medem, Inc.
        - [www.ihealthrecord.org](http://www.ihealthrecord.org)
      - MediModules, Inc.
        - [www.mymedilist.org](http://www.mymedilist.org)
Example: myGHI

Key points:

• offers an ability to view all claims related information
• No editing of health related information allowed
Example: *myGHI*

**Benefits**

**Plan Overview**

- **Medical:** RX PLAN EXPRESS SCRIPTS INC., Category 252
- **Pharmacy:** Covered Through Express Scripts
- **Dependent Child Coverage:** Dependent children are covered until age 19, college age students - until 25.
- **Major Medical Deductible Requirement:**
  - **Contract:**
  - **Amount:**
  - **Amount:**

**Prescription Information**

**Message Contact to Plan**

**Financials**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Comments</th>
<th>In Network</th>
<th>Out of Network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Deductible</td>
<td></td>
<td></td>
<td>$200</td>
</tr>
<tr>
<td>Family Deductible</td>
<td></td>
<td></td>
<td>$500</td>
</tr>
</tbody>
</table>

© 2007 MediModules, Inc.
Example: ihealthrecord

What is ihealthrecord?

- The iHealth Record is a secure and confidential, interactive personal record of a patient’s medical history. The patient can create, manage and share (with authorized physicians) the personal health information.

- Providers cannot add to the content but recently, they have started using secure messaging and online consultation.
Example: ihealthrecord

Key points:

- offers the ability to enter all of your health related information with patient controlled access
- Full editing of data allowed by patient
- Has some connectivity with the provider, but not full access
Example: ihealthrecord
Example: LifeSensor

This is a full scale fee-based PHR that is similar in capability to ihealthrecord.org

- **Key Points**
  - **Personal Access Codes**
    - Allow the provider to view information
    - NO editing of the data by the provider
    - In an emergency, by using this code, you can grant access to your “emergency” information to the Emergence Responder
  
  - **Internet-based updating**
    - Connect to ancillary systems such as labs

© 2007 MediModules, Inc.
Example: MyMediList

**Key Points**

- **Patient Centric Model**
  - Allows the patient and the provider to access the medication and allergy data (problem list in upcoming version)
  - All access is explicitly patient authorized
  - Has extensive auditing of access as well as print reports

- **Connects to the Provider**
  - Using web-based seamless connectivity to the provider, both can update the information, thus ensuring a more recent list
Example: MyMediList

- Demographics
- Medication Information
- Allergies
Example: MyMediList

- If web-access is not available then paper print reports are available
Applying this in Emergency Preparedness

- The Emergency Responder needs three things:
  - Quick access to the medical information
  - Delivery of information by trained professionals
  - Up-to-date information

AHIMA: http://www.myphr.com/your_record/why_start.asp
Applying this in Emergency Preparedness

Quick access

- Excerpt *(HealthDay News, 4/26/07):*
  - [...] paper medical records are heavy, and most are stored in a basement or ground floor of a building. "All the records were easily sitting in foul-smelling water for three weeks," he said. "They're all lost."
  - Dr. Brooks remembers seeing refugees from New Orleans who did not know what type of cancer they had or what kind of treatment they had received.
  - [Her hospital]..started developing an electronic records system 15 years ago and, as a result, information for all 300,000 of its patients was accessible after the storm.
Quick Access

- Extensive requirements for access will hinder treatment

- Access needs to be quick and easy
  - Patient granted access, such as by a PIN code
  - Patient provided via web-access
  - Patient shows the information to the provider who then gets the access via the web

- This process must occur with both privacy and security in mind
Trained Professionals

- Trained professionals are often available in such time of crisis
  - Volunteer organizations
    - American Red Cross
  - Government
    - FEMA, State-based

- However, the system must be able to handle this access
  - Role-based access
  - Easily setup access
Up-To-Date Information

Not assessed

- Harris Interactive (July, 2006)
  - 1,100 adults: 7 percent of U.S. adults use online personal health records
  - Most believe that this was a self selected group, as Harris conducts only online polls

- Access via provider is only as good as the last visit
- Access via patient is only as good as when they remembered to last update the information

This will occur best in the format of a patient and provider controlled system
Conclusion

- Patient-centric technology is becoming increasingly popular.
- Ensuring access of vital information to the right people at the right time is a key in the Emergency Response cycle.
- Numerous systems exist, each with their own benefits.
- Privacy and security cannot be foregone in this process.
- The key is to ensure the best possible care for the patient.
References

- AHRQ
  - [www.ahrq.gov](http://www.ahrq.gov)
- Institute for Healthcare Improvement
  - [www.ihi.org](http://www.ihi.org)
- Markle Foundation
  - [www.markle.org](http://www.markle.org)
- American Health Information Management Association (AHIMA)
  - [www.ahima.org](http://www.ahima.org)
- Harris Interactive
  - [www.harrisinteractive.com](http://www.harrisinteractive.com)
Links

Information on Personal Health/Medication Records

Research various personal health records (unbiased)
http://www.myp.hr.com/resources/phr_search.asp

Privacy and Security

Emergency Preparedness and Personal Health Records