Smart-Card Based Emergency Medical Records: Past, Present, and Future

Presentation to:
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Agenda

• **Past: Early Pioneers**
  - Trends Affecting Migration to Smart Cards
  - Initial Health Card Vision
  - First Pilots: Health Passport/New England Partners

• **Present: Growth of Smart Card EMRs**
  - Current Programs
  - Trends
  - Stand-Alone Smart Cards Versus HINs

• **Future: Paradigm Shift**
  - Short-Term Projections
  - Long-Term Projections
• Migration from Electronic Benefits Transfer to Electronic Service Delivery
• Impact of HIPAA
• Growth of the Internet
• Health Information Networks / Patient Portals
• Merging of Card and Network-Based Technology
• **First Tier Electronic Benefits Transfer**: Delivery of Food Stamps and Cash through magnetic stripe technology

• **Second Tier Electronic Benefits Transfer**: Delivery of WIC, Child Care, Child Support and other programs through chip card technologies

• **Electronic Service Delivery**: Consolidated delivery model that adds health applications to cash using multi-application cards
• Administrative Simplification
• Information Privacy
  - Rights of individuals to records
  - Authorized uses and disclosures of information
  - Requires identity authentication of requestor/provider of health records
• Importance of privacy and security drives smart card adoption in health care
Early Vision: Stand-Alone Multi-Application Health Cards

- Medical ID Card
- Express Registration
- Insurance e-Claims Processing
- Eye Care
- Dental Care
- Immunizations Record
- Physician ID & Credentials
- Secure Medical Record Access
- Prescription Processing
- Emergency Care

JOHN DOE
123 45 6789
Multi-application card platform for government service delivery to citizens brings together Emergency Medical Record and benefit delivery in a single card platform…

Universal Card Paradigm: HEALTH PASSPORT

- bridge information and system gaps across programs, endpoints and States
- delivery of health, nutrition and EBT services with one card
The HPP Card captured emergency medical and benefit data from each legacy system and updated legacy systems with new information ...
The emergence of HINs created a new role for smart cards – authenticating users of online EMRs…
Organizations providing private information over the net need assurance that the person or entity viewing and using that information is the person or entity they claim to be and that they are authorized to do so.
HPP Phase II: Network-Centric Model

On-Line WIC

Smart Card Migrates from Card-Centric EMR to Authentication Device for Access to Patient Portals

Electronic Medical Data Exchange
**HealthSmart Network**

- Personal HIN that interoperates with / is complementary to current health information exchange architectures
- 45 affiliated and related health care facilities in the New York metro area including:
  - Mount Sinai Medical Center
  - Elmhurst Hospital Center
  - Cabrini Medical Center
  - Englewood Hospital
  - North General Hospital
  - Queens Hospital
  - St. John's Riverside Hospital
  - Settlement Health
- Up to 1.2 million cards
- Siemens Patient Health Card Solution

**Data on card:**

- **Demographics**: Identification, Health Care Proxy, and Insurance
- **Clinical**: Allergies, Encounters, Immunizations, Medications, Problems, Procedures, and Results

**Started with Queens Health Network** - 2 acute-care facilities, 15 community-based medical centers, and 6 school-based health centers

- Patient base is about 40% Medicaid-insured with large, non-English speaking clientele
- 99% of returning patients retained their cards during a one-month study period
Private fee-based membership concept helps consumers in emergencies....

- Florida eLife-Card
  - Issued to 1 million Florida residents
  - Response to emergency healthcare needs resulting from the effects of Florida's hurricanes
  - Fee-based card issued by various organizations ($65-$80 fee)
  - RFID tag and a smart card chip
  - First responder PDA to read emergency information
    - PDA has a biometric scanner
    - Uses fingerprint to authenticate right to access the information on the card
  - Card used to access a complete health record over the Internet
    - Interfaces with over 300 different hospital medical information systems
    - Cardholders can update personal information over the Internet
In the past, government agencies pioneered smart card projects, but today the private sector is leading adoption….

- **University of Pittsburgh Medical Center (UPMC)**
  - 19 hospitals, 5,000 doctors in over 400 offices
  - Distributed to 2,000 UPMC patients initially
  - Encrypted on-card information, protected by patient-supplied PIN
  - Demographic, insurance, and basic medical information -- allergies, conditions and immunizations updated at each doctor visit

- **Southeast Texas Hospital System - HMI’s eNvision system**
  - Healthy Communities Access Program (HCAP) grant from the federal Health Resources and Services Administration (HRSA)
  - Create a RHIO for 6 rural hospitals, associated referring physicians, clinics and ancillary providers
  - Start with automated registration
  - Initial total of 35,000 cards issued
  - First RHIO with smart card-based backbone

- **Danbury Health System - HMI’s eNvision system**
  - Card readers for staff to access and update patient information during the patient visit
  - Kiosk at the hospital allows patients to privately view their medical information
  - Interface to the hospital’s Siemens HIS system at the time the card is presented containing the data loaded at the physician office
  - Patients update their own data on the card with a secure web site
In the private sector, hospitals and payers use the smart card to improve care, while marketing to customers and helping the “bottom line”....

- **Northeast Health System (NHS)**
  - Beverly Hospital and Addison Gilbert hospital
  - 500,000 cards
  - Cards by Health Card Technologies Inc.
  - Initially stores only information that identifies the patient's records in the hospitals' computers so if the card is stolen or lost, there is no security risk.

- **Mississippi Baptist Health System**
  - Distributed to 70,000 card holders
  - Maintains demographic information and a subset of patient’s medical record

- **Blue Cross of Northeastern Pennsylvania (BCNEPA)**
  - Claims data used to build a payer-based patient record with access to that record for the patient to add personal health information
  - Smart card issued to the subscriber with all of this aggregated health information securely encrypted on the new smart health insurance card
  - Providers update the record

- **S.M.A.R.T Association LifeMed**
  - Patient information and admission data system that combines a real-time web interface with the portability and security of off-line systems
  - Smart card used to solve an expensive problem - ensuring correct patient data and information
  - Step towards a real community-wide EMR, while enhancing marketing to clients
Physical standards have been in existence for a long time, but data standards are a significant break-through…

• Existing Standards
  - Health Level 7 ("HL7") – widely accepted data messaging standards
  - PC/SC – smart-card specific standards

• Important new development - Continuity of Care Record
  - Extensible Markup Language data formats
  - Definition rules from Systematized Nomenclature of Medicine, International Classification of Diseases-9, and Logical Observation Identifiers, Names, and Codes
  - Standard viable for both card- and Internet-based EMRs

• Public mandates versus private adoption of standards
• Over 250 Regional Health Information Organizations (RHIO) – many in planning stage
• Few mature and ongoing RHIOs
• Many RHIOs are grant funded – and face issue of self-sustainability
• Critical issue is security and privacy
• National Health Information Network (NHIN) pilot projects are in their infancy
• Controversy over how best to link RHIOs to form a national network
• Privacy and security / building consumer trust significant issues
### Stand-Alone Smart Cards
- Decentralized approach
- Greater portability
- Immediate access in emergency situations through PDAs
- Quicker, less complex implementation
- Mini Repository – not full EMR
- Enhanced security and privacy through smart card and patient control of information
- Often patient-driven – more consumer-friendly solution to actively engage patients
- Consumers more comfortable when they have complete control of their data

### Internet-Based HINs
- Centralized approach
- Interoperability within regions, but not across regions
- Networks not accessible in all areas and situations
- More complex and expensive implementation
- Complete medical record available
- Complex security requirements – security approach varies according to implementation
- Typically payer or provider driven – more difficult to engage consumers
- Consumers may only have opt-in/opt-out control
Smart cards can provide our healthcare community with a feasible and expeditious short-term solution to emergency information access...

- RHIOs/HIEs not yet ready for “prime time”
- Smart cards for first responder PDA emergency applications - portable data safety net in an emergency
- Smart cards link patients to data in disparate information systems
- Patients quickly enjoy direct control of key medical data on a highly portable, secure platform
- Smart cards linked to EHR - the card acts as a bridge until a more complete structure can be built
Working in concert, smart cards and HINs together offer the “Holy Grail”…

- Enhanced security and patient control over use of networks
- Greater empowerment, allowing patients to choose who, when, and how information is accessed
- Supports patient mobility, while securing records available across the country
- Quick and reliable access to information in emergencies, yet comprehensive information available to support ongoing treatment