IEEE P2407 Standard for Personalized Health Informatics

Global Social Forces

Individual-level factors

- High consumer cost share:
  * Co-payment fees, HSA
- More interest in prevention:
  * limits of curative model
  * high cost-effectiveness
- Need for healthy children
- Consumer empowerment:
  * health self-management
  * shifting locus of control

Societal- and community-level factors

- Community-based focus:
  * effective interventions
  * Social Determ. of Health
- Aging populations:
  * exploding healthcare cost
  * pressure on budgets
  * rationing policies
- Push for Open data Access
- Chronic disease epidemic:
  * need for care coordination
  * long-term management
- Out-of-hospital delivery:
  * pushing care to home
  * pervasive care (mobile)
- Digitalization of providers:
  * electronic data exchange
  * from payment to storage

Leverage, Integrate

- East meets West: growing interest in non-chemical, non-surgical treatments.
- Validate non-pharma data
- "Digital Children"
- Nutrition databases
- Decision Support Syst.:
  * higher positive impact on non-professionals
- Open Content movement:
  * much free quality data
  * pressure for openness
- Growth of tele-medicine
- Powerful medical devices
- Inter-provider data flows
- EMR Deployments

API? IEEE11073 Continua HL7 CCR

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IEEE2407 Contributions

- Open Source Clinical Trials
- Children as Health Engineers
- Community Health Engineer
- Personalized Health Coach
- Health Engineering:
  * consumer-grade DSS
  * create individual's profile
  * develop optimizing plan
  * filter, serve knowledge
  * alert to latest publications
  * track and measure results
- Data management:
  * Longitudinal storage
  * External collector
  * Identity manager
  * ACL manager
- Reference Implementation

Family Health Dashboard

Global Technical Forces

- Internet: global consumer publishing tool (blogs, MySpace, Wikipedia, eBay, personal websites)
- Proliferating mobiles
- Cheaper hardware daily
- Higher consumer adoption of ICT than healthcare professionals
- Internet link everywhere
- Mass customization
- Global standards-based secure networks built by financial institutions. Brands consumers trust.
- Global development
  - No-cost, complete Free / Open Source Software (F/OSS) web stack
  - OS irrelevancy
- Cheaper hardware daily

Reference Implementation

Client access

- Packet radio
- PSTN lines
- Mobile phones
- Game consoles
- One Laptop Per Child
- Personal Computers

Application Server and Data Storage

- Pure XML API
- Low-end hardware and "old" OS support built-in
- IVR, voice server
- Fax server
- TOR (The Onion Router)
- Knowledge Mgmt.
- PHP 5
- Apache 2.x
- MySQL 4.x
- OS agnostic
- Hardware agnostic