International Health IT Programs at a Crossroad

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&

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My Background

- Physician (Psychiatrist)
- U.S. Department of Veterans Affairs
  - VA Medical Centers
    - Clinical and administrative roles
    - Academic appointments
  - VA Central Office
    - Variety of IT leadership roles
      - CHIO/CMIO
      - CIO
- U.S. Department of Health and Human Services
  - National Coordinator for Health IT
- Open Health Tools, Inc.
  - CHIO
  - Multinational, non-profit organization with diverse participants
    - Improve health and well-being through health IT transformation
    - Vendor neutral open source

3 Perspectives to Consider

- Dimensions of health IT
- Health IT as a sociotechnical activity
- Factors that make health IT difficult

3 Health IT Dimensions
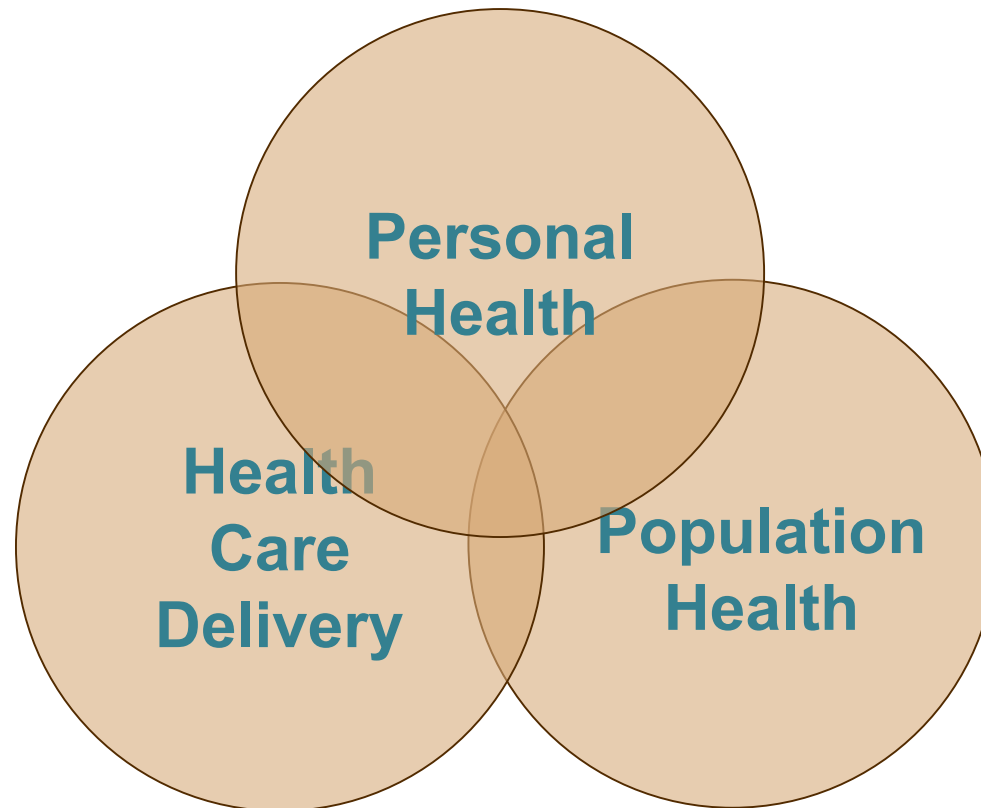
"Socio" Challenges

Multiple independent entities interacting

- Is the focus on health and wellbeing of individuals ("patients") and communities of individuals?
  - ◦ Or secondary to
    - • Sustaining current health care processes
    - • Maintaining dominant market positions
- Is the goal to create an (actively evolving) "learning health system?"
- Are perverse incentives in health care delivery reimbursement impeding health IT adoption and use?
- Are the affected health IT users and user organizations actively engaged in the governance?
- Are the health IT interventions increasing or

9 Principles to Guide Successful Health Care IT

Principles for Evolutionary Change

1. Focus on improvements in care — technology is secondary.
2. Seek incremental gain from incremental effort.
3. Record available data so that today's biomedical knowledge can be used to interpret the data to drive care, process improvement, and research.
4. Design for human and organizational factors so that social and institutional processes will not pose barriers to appropriately taking advantage of technology.
5. Support the cognitive functions of all caregivers, including health professionals, patients, and their families.

Principles for Radical Change

6. Architect information and workflow systems to accommodate disruptive change.
7. Archive data for subsequent re-interpretation, that is, in anticipation of future advances in biomedical knowledge that may change today's interpretation of data and advances in computer science that may provide new ways of extracting meaningful and useful knowledge from existing data stores.
8. Seek and develop technologies that identify and eliminate ineffective work processes.
9. Seek and develop technologies that clarify the context of data.

Computational Technology for Effective Health Care: Immediate Steps and Strategic Directions. National Research Council (US) Committee on Engaging the Computer Science Research Community in Health Care Informatics; Stead WW, Lin HS, editors. Washington (DC): National Academies Press (US); 2009.

Sociotechnical Issues

	Observations—What Committee Members Saw	Consequences—Why the Observations Matter	Opportunities for Action—What We Can Do About It[a]
Category 6. Change in a Sociotechnical System			
24	Most systems are partially or poorly or incompletely integrated into practice	• Inconsistent use and work-arounds increase error • Benefits are significantly less than anticipated • Reduced investment	• Focus on the desired outcomes instead of the technology (S/R)
25	Innovation requires locally adaptable systems but interoperability and evidence-based medicine require more standardization	• Limited innovation and standardization	• Management that encourages initiation of improvements by health professionals (S) • Technology and processes that allow local innovation and flexibility but foster collaboration and learning at a national scale (R)

R, solutions still to be discovered (research);

S, solutions known today but not implemented (short term).

Socio-political-technical Challenges

- Political cycles drive the timetable for "delivering results"
  - Often causes solutions to be sub-optimized
- Political, not project, needs drive organizational changes
  - Centralized-decentralized shifts in national health IT initiatives
    - Organizational structures
    - Governance
    - Funding
- Politically-driven modifications disrupt progress and delay or prevent success

Factors Making Health IT Difficult

- We have a health care SECTOR, not a SYSTEM

- The most highly-trained, highly paid staff are the ones who must "use" health IT

- ½ of what we believe about health and healthcare is WRONG

- Health-related knowledge doubles every 10 years (or faster?)

- A learning health care system will be continuously morphing

Trends in Technologies

- Some new breakthroughs start out expensive and exclusive

The Automobile

JAMA – April 21, 1906

AUTOMOBILES FOR PHYSICIANS' USE

ARE THEY PRACTICAL? ARE THEY DESIRABLE? ARE THEY ECONOMICAL?

ARE THEY BETTER THAN HORSES?

THE AUTO AS A PHYSICIAN'S VEHICLE.

F. M. CRAIN, M.D,

REDFIELD, S. DAK.

Graft and Robbery

The Features of an Ideal Car.

An ideal physician's car has not yet been placed on the market. The nearest approach to it, in my opinion, is the

THE PHYSICIAN'S AUTOMOBILE INDISPENSABLE.

HENRY ENOS TULEY, M.D.

LOUISVILLE, KY.

JAMA – April 21, 1906

THE AUTO TOO MUCH TROUBLE TO KEEP IN ORDER.

F. A. SWEZEY, M.D.

WAKONDA, S. DAK.

IN my practice, which is entirely country work, I have used, for two seasons, an 8-H.P., one cylinder, water-cooled, gasoline runabout (III), and I find that the automobile is not practical for such work, owing to bad roads and inclement weather. They are more for pleasure than for general business use, and I would not advise any physician in country work to buy one and to rely entirely on it. In night work or in wet or cold weather an auto is very annoying; in fact, I have sold mine, and will never buy another. As my

JAMA – April 21, 1906

Relative Cost of Keeping a Horse and an Automobile.

| | HORSE AND RIGS. | AUTOMOBILE. |

RELATIVE FIRST COST OF EQUIPMENT.

HORSE AND RIGS		AUTOMOBILE	
Two horses	$400	Automobile	$700.00
Buggy, rubber tire	100	Fur robe	20.00
Cutter	50	Heavy lap robe	8.00
Cart	25	Summer robe	2.00
Two sets harness	40		
Two day blankets	20		
Two night blankets	10		
One fur robe	20		
One heavy lap robe	8		
One summer lap robe	2		

SUPPLIES FOR ONE YEAR.

HORSE AND RIGS		AUTOMOBILE	
Oats, 300 bushels, at 30c.	$117	Gasoline, 120 gals., at 18c.	21.60
Hay, 2 tons	28	Lubricating oil	4.20
Straw, 6 tons	30	Spark plugs	6.00
Farrier services	75	Inlet valves	4.00

REPAIRS AND HIRED MAN.

HORSE AND RIGS		AUTOMOBILE	
Repairs (ordinary)	40	Repairs (average circumstances	50.00
Man	100	Man	25.00
Total	**$1.065**	**Total**	**$840.80**

No. of months' service, 11   No. of months' service, 10.
These estimations are calculated on a basis of two years' service.

Time saved in making trips, 40 per cent.

JAMA – April 6, 1912

AUTOMOBILE ACCESSORIES AND AIDS TO COMFORT

Trends in Technologies

- Successful technologies become available to more and more users
  - "Faster, easier, cheaper, more convenient"
  - Features transition from high-end to widely available at lower cost before turning into commodities
- Markets mature from vendor driven to consumer-driven
- As markets mature, profits are derived by evolution of business models
  - Smaller profit margins with a much larger customer base.

There is Reason to be Optimistic!!

- >40 years of experience
- Wide range of isolated successes ("positive deviants")
  - Technology is "good enough"
- Socio
  - Increased understanding of how to successfully improve Complex Adaptive Systems
- Technical
  - May be on the verge of flipping from an immature health IT industry to a robust, user-driven market

Be careful what you wish for?

Your Future Health IT Systems

- You can select a suite of applications to meet your unique needs
  - Subscribe, purchase, or pay by use for each app or for the entire suite
  - Easy to make any unique enhancements
    - Enterprises can determine the range of user-allowed modifications (configurations)
- Create/mold your own "front end"
  - You CAN take it with you!
- Implement whatever updates are desired at the schedule you choose and at minimal costs – often with your system capabilities improving at a steady pace

Affordable, convenient, easy to use