Health IT in the US: A few lessons learned

5 August 2015

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President & CEO, AMIA
Agenda

• Meaningful Use
• 5 lessons learned
• Near term challenges
• What does the future hold?
HITECH WAS FIRST AND FOREMOST A STIMULUS BILL
HITECH was part of the US stimulus bill
HITECH Framework: Meaningful Use at its Core

ADOPTION

MEANINGFUL USE

EXCHANGE

Regional Extension Centers
Workforce Training

Medicare and Medicaid Incentives and Penalties

State Grants for Health Information Exchange
Standards & Certification Framework
Privacy & Security Framework

Improved Individual & Population Health Outcomes
Increased Transparency & Efficiency
Improved Ability to Study & Improve Care Delivery

Health IT Practice Research
# Program Payments thru December 2014

<table>
<thead>
<tr>
<th></th>
<th>Amount Paid 2011 Program Year</th>
<th>Amount Paid 2012 Program Year</th>
<th>Amount Paid 2013 Program Year</th>
<th>Amount Paid 2014 Program Year</th>
<th>Amount Paid 2015 Program Year</th>
<th>Amount Paid Program - To-Date</th>
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</thead>
<tbody>
<tr>
<td><strong>Medicare Eligible Professionals</strong></td>
<td>$979,666,454</td>
<td>$2,879,387,560</td>
<td>$2,573,918,372</td>
<td>$433,802,880</td>
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<td>$6,866,775,266</td>
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<tr>
<td>Doctors of Medicine or Osteopathy</td>
<td>$869,606,164</td>
<td>$2,605,745,259</td>
<td>$2,315,662,323</td>
<td>$392,784,000</td>
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<tr>
<td>Dentists</td>
<td>$757,738</td>
<td>$2,256,298</td>
<td>$2,041,322</td>
<td>$341,040</td>
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<td>Optometrists</td>
<td>$39,019,045</td>
<td>$116,918,376</td>
<td>$105,145,995</td>
<td>$11,912,880</td>
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<td>Podiatrists</td>
<td>$51,783,860</td>
<td>$97,193,161</td>
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<td>Chiropractors</td>
<td>$18,499,648</td>
<td>$57,274,466</td>
<td>$75,626,150</td>
<td>$15,848,560</td>
<td>$-</td>
<td>$167,248,824</td>
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<tr>
<td><strong>Medicaid Eligible Professionals</strong></td>
<td>$1,048,057,617</td>
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<td>$3,447,836,024</td>
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<td>Certified Nurse-Midwives</td>
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<td>$24,076,250</td>
<td>$22,074,500</td>
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<td>$72,522,000</td>
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<tr>
<td>Dentists</td>
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<td>Nurse Practitioners</td>
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<td>$198,417,170</td>
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<td>$33,490,003</td>
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<td>$618,255,938</td>
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<tr>
<td>Optometrists</td>
<td>$8,500</td>
<td>$1,195,667</td>
<td>$497,250</td>
<td>$-</td>
<td>$-</td>
<td>$1,701,417</td>
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<tr>
<td>Physicians</td>
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<td>$852,275,774</td>
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<td>Physicians Assistants</td>
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<td>$12,932,750</td>
<td>$12,677,750</td>
<td>$1,955,000</td>
<td>$-</td>
<td>$41,080,500</td>
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<tr>
<td><strong>Eligible Hospitals &amp; CAHs</strong></td>
<td>$3,176,726,188</td>
<td>$5,580,538,314</td>
<td>$6,226,386,660</td>
<td>$2,427,104,158</td>
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<tr>
<td>Medicare Only</td>
<td>$113,391,424</td>
<td>$230,951,586</td>
<td>$229,158,360</td>
<td>$94,727,361</td>
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<tr>
<td>Medicare/Medicaid</td>
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<td>$5,241,556,133</td>
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<td>$2,311,906,429</td>
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<td>$16,368,207,139</td>
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<tr>
<td><strong>Medicare Advantage Organizations For Eligible Professionals</strong></td>
<td>$180,106,590</td>
<td>$134,773,289</td>
<td>$91,873,828</td>
<td>$-</td>
<td>$-</td>
<td>$406,755,547</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$5,384,556,849</strong></td>
<td><strong>$9,792,270,690</strong></td>
<td><strong>$9,948,115,223</strong></td>
<td><strong>$3,007,177,555</strong></td>
<td><strong>$1,594,619</strong></td>
<td><strong>$28,133,714,935</strong></td>
</tr>
</tbody>
</table>
ADOPTION FIRST, INTEROPERABILITY SECOND
EHR adoption among US office-based physicians, 2001-2013

Note: Data include nonfederal, office-based physicians and exclude radiologists, anesthesiologists, and pathologists.
Source: CDC/NCHS, National Ambulatory Medical Care Survey and National Ambulatory Medical Care Survey, Electronic Health Records Survey.
NCHS Data Brief No 143 http://www.cdc.gov/nchs/data/databriefs/db143.htm
Standards support was programmatically part of “operations”
LESSONS LEARNED
(IN 5 EASY STEPS)
FRAMING MATTERS:
HEALTH IT IS ONE ULTRA-LARGE SCALE SYSTEM
Ultra-Large-Scale Systems
The Software Challenge of the Future
It’s not architecture, it’s city planning

- Decentralized control
  - Federation and data sharing (via standards)
  - Patient will be the one common feature
- It’s a sociotechnical system
  - People don’t just interact with the systems, they are part of the system
- Unknowable and diverse requirements
  - Iterative, incremental development, since we will learn as we go
- Continuous evolution and deployment
  - Tolerate differences in semantics, syntax, and sophistication
  - Path of least regret
- Normal failures
  - Security is important, recovery and restoration even more so
- Orchestration rather than command and control
  - This is not architecture and engineering. It’s city planning.
STANDARDS AND INTEROPERABILITY: HARD IN THE CONCRETE, IMPOSSIBLE IN THE ABSTRACT
Interoperability only makes sense in the context of what you want to DO

Interoperability (IEEE)

• Ability of two or more systems to **exchange** information
• Ability of those systems to **use** the information that has been exchanged
FRAME THE SOLUTION IN TERMS OF THINGS THAT MATTER TO PEOPLE
The Triple Aim

- Health
- Healthcare
- Costs
WE NEED INFORMATICS ACROSS THE 4 SCALES OF ENGAGEMENT
The learning health system

Informatics, standards, testing, business drivers, governance
FIVE TECHNICAL THINGS TO STANDARDIZE
Technical stack

- **Meaning**: How should well-defined values be coded so that they are universally understood?
- **Content Structure**: How should the message be formatted so that it is computable?
- **Transport**: How does the message move from A to B?
- **Security**: How do we ensure that messages are secure and private?
- **Services**: Purpose-specific APIs and services that leverage the 4 other building blocks
NEAR TERM CHALLENGES
Report of the AMIA EHR 2020 Task Force on the Status and Future Direction of EHRs

Thomas H. Payne,1 Sarah Corley,2 Theresa A. Cullen,3 Tejal K. Gandhi,4 Linda Harrington,5 Gilad J. Kuperman,6 John E. Mattison,7 David P. McCallie,8 Clement J. McDonald,9 Paul C. Tang,10 William M. Tierney,11 Charlotte Weaver,12 Charlene R. Weir,13 Michael H. Zorouian14

Over the last 5 years, stimulated by the changing healthcare environment and the HITECH Meaningful Use (MU) EHR Incentive program, EHR adoption has grown remarkably, and there is early evidence of benefits in safety and quality as a result.1,2 However, with this broad adoption many clinicians are voicing concerns that EHR use has had unintended clinical consequences, including reduced time for patient-clinician interaction,3 transferred new and burdensome data entry tasks to front-line clinicians,4,5 and lengthened workdays.6,7,8 Interoperability between different EHR systems has languished despite large efforts.9,10 These frustrations are contributing to a decreased satisfaction with professional work life.11,12,13 In professional journals,14 press reports,15,16,17 on wards and in clinics, we have heard of the difficulties that the transition to EHRs has created.18 Clinicians ask for help getting through their days, which often extend into evenings devoted to writing notes. Examples of comments include “Computers always make things faster and cheaper. Not this time.” and “My doctor pays more attention to the computer than to me.”

Ultimately, our goal is to create a robust, integrated, interoperable health system that includes patients, physician practices, public health and population management, and support for clinical and basic sciences research. EHRs are an important component of this system. However, many issues arise from the transition to EHRs, and there is a need to re-focus efforts towards improving the clinical utility and patient care. Much of the focus of the last decade, via MU and other incentives, was to encourage providers and other health professionals to implement EHRs and use them to capture and share data important to quality and cost. The work now ahead is to ensure that these systems are designed and implemented in a way that yields promised benefits to efficiency, quality and safety with fewer side effects.25 While cost, usability, and other considerations are important, patient safety and quality of care need to guide how we optimize these systems.

There can be a tension between efficiency and safety. Medication reconciliation is a good example—medication errors at transitions of care are a significant safety concern and represent a rationale for adding safeguards despite the impact on time and process.26 EHRs now include detailed processes to reconcile medications that some providers feel add to their workload and slow them down. Informed by careful studies,27,28,29 tradeoffs do need to be made to strike the right balance. However, there are many ways to optimize both safety and efficiency and this is the goal of the recommendations of the AMIA EHR 2020 Taskforce.

As the professional home of health informatics professionals, AMIA is well qualified to address many of the health IT challenges from a wide range of perspectives. AMIA members represent a diverse mix of professionals committed to improving the health of the public. Through collaboration among these various stakeholders, we can provide a comprehensive, integrated, and interoperable health information system.
Simplify documentation
Focus Regulation
Increase transparency
Encourage innovation
Keep the patient at the center

PATIENT-CENTERED CARE

Concept by Sachin Jain, Art by Matthew Hayward © 2014 All Rights Reserved
WHAT DOES THE FUTURE HOLD?
EHRS WILL NOT BE THE MOST IMPORTANT HEALTH IT
The Physician's Automobile

Its Advantages and Disadvantages.

A DISCUSSION OF CARS, TIRES, MOTORS, ROADS, CHAUFFEURS, AND REPAIRS.

PROFITING BY THE OTHER MAN'S EXPERIENCE.

ROLANDUS G. WALKER, M.D.
DENVER.

BUY a car proved good by others' experiences. Do not buy a machine that was worn out by a previous owner, or one that was built to sell cheaper than a good, substantial automobile can be sold. My car has proved a great satisfaction to me. It is a well-made, four-cylinder runabout (102*), 20 h. p., easy access to all working parts, plenty of space for satchels, rides easily and is operated economically.

Advantages of Automobiles.

The advantages of automobiles as compared with all other vehicles are, in brief, their speed, absence of fatigue, ease of control in not running away, in not starting unbidden, in being safely left unintended, in excellence of brakes, economy in requiring less stable room, less immediate attention on return from a journey, and less lengthy attention before starting on one, the access they give to beautiful scenery, the access to a large circle of friends when living in the country, and the access to the country when in town, the health they bring with fresh air, all united with an absorbing pursuit, distraction from work, ease of traveling, and perfect harmlessness in the streets.

The horse and buggy can not be compared with an automobile for genuine pleasure, health and excitement. For the broadening, we commend an auto trip. Not a cut-and-dried affair, where the details have been arranged in advance, but a go-as-you-please, with no definite route in view. Just go when and where the spirit moves you. Don't hurry. Take things easy, and if you come to a broken bridge, don't swear, just consider it one of the experiences, back up and find another way around. It is these unexpected things that bring the best recreation. Let down the top and give the sun and air a chance to get at you. They are both great gifts and ought not to be shut out. Stop at every town, talk with its people, compliment them if you see anything worthy, and carry home with you added knowledge of human nature and a sense of satisfaction that will do you good.

The Auto a Time Saver.

The automobile is a great time saver, which is an item of great importance to the physician. The auto enables the physician to spend more time in his office, which can be profitably employed in reading and studying or recreation, the value of which can not be computed in dollars and cents. The saving of time, the fresh air, the forgetting of little annoyances, the absorption in the car in motion, and the possessing of a hobby which one enjoys while actually doing his work, bring the doctor home at night fresh and ready for his reading.

Study Your Car.

Study and understand your car as you do the human body. Learn to diagnose your trouble when it arises, understand the physiology of your machine, and know what to do when it breaks down. It is the only way to make a success of an automobile.
Patients will be first order participants in health, healthcare and research

- PCORI
- Precision Medicine
- Consumer devices
- Information-empowered Patients
Non-health data will become bigger than health data
Every minute of the day:

- Vine users share 3,472 images.
- YouTube users upload 72 hours of new video.
- Email users send 204,000,000 messages.
- Google receives over 4,000,000 search queries.
- Facebook users share 2,460,000 pieces of content.
- Skype users connect for 23,300 hours.
- Yelp users post 26,380 reviews.
- Tinder users swipe 416,667 times.
- WhatsApp users share 347,222 photos.
- Apple users download 48,000 apps.
- Pandora users listen to 61,141 hours of music.
- Amazon makes $83,000 in online sales.
- Instagram users post 216,000 new photos.
- Twitter users tweet 277,000 times.

The global internet population grew 14.3% from 2011 - 2013 and now represents 2.4 billion people.
THE ONLY STANDARD YOU NEVER CHANGE, IS A STANDARD YOU NEVER USE
Standards life cycle

Widely adopted, but declining value

Mapping?

Current state-of-the-art

New and emerging

You are here

value

time
TAKE THE PATH OF LEAST REGRET
• Modular & substitutable
• Postel’s principle
  – “Send conservatively, receive liberally”
• Never let perfect be the enemy of good (or good be the enemy of better)
Questions

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