

The Future of Healing at Kaiser Permanente

Pat Brown Institute, CSULA
December 12, 2011

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Francis Peabody, 1927

**“The secret to patient care
is caring for the patient”.**

Survey

1. ?Facebook, ?Twitter, ?Linked In
2. Played Angry Birds? Any online Game?
3. *Know the #1 addiction problem in South Korea?*
4. *Have emailed your doctor?*
5. Would consent to enter your entire record including genomic signature into a research repository?
6. *Connected generations drive reset switch*

Copernicus

- About 1532 Copernicus had basically completed his work on the manuscript of *De revolutionibus orbium coelestium*; but despite urging by his closest friends, he resisted openly publishing his views, not wishing—as he confessed—to risk the scorn "to which he would expose himself on account of the novelty and incomprehensibility of his theses."¹
- The first copy of his published version was delivered to him on the day of his death, in 1543.

Integrated Care Delivery: the Kaiser Permanente Model: Past, Present, **Future**

1. Sidney Garfield's vision of integration
2. KP HealthConnect:
Technology support for the vision
Putting the patient first.
3. Health Information Exchange:
It's about trust and collaboration.
4. Crisis and Opportunities for
Transformational Innovation

Behavioral Symphony for Wellness:
Mobile, Social Networking, Gaming, Health Avatars

1) Sidney Garfield's vision of Integration

Dynamic Duos:

Jobs/Wozniak, Hewlett/Packard, Watson/Crick,
Kaiser/Garfield

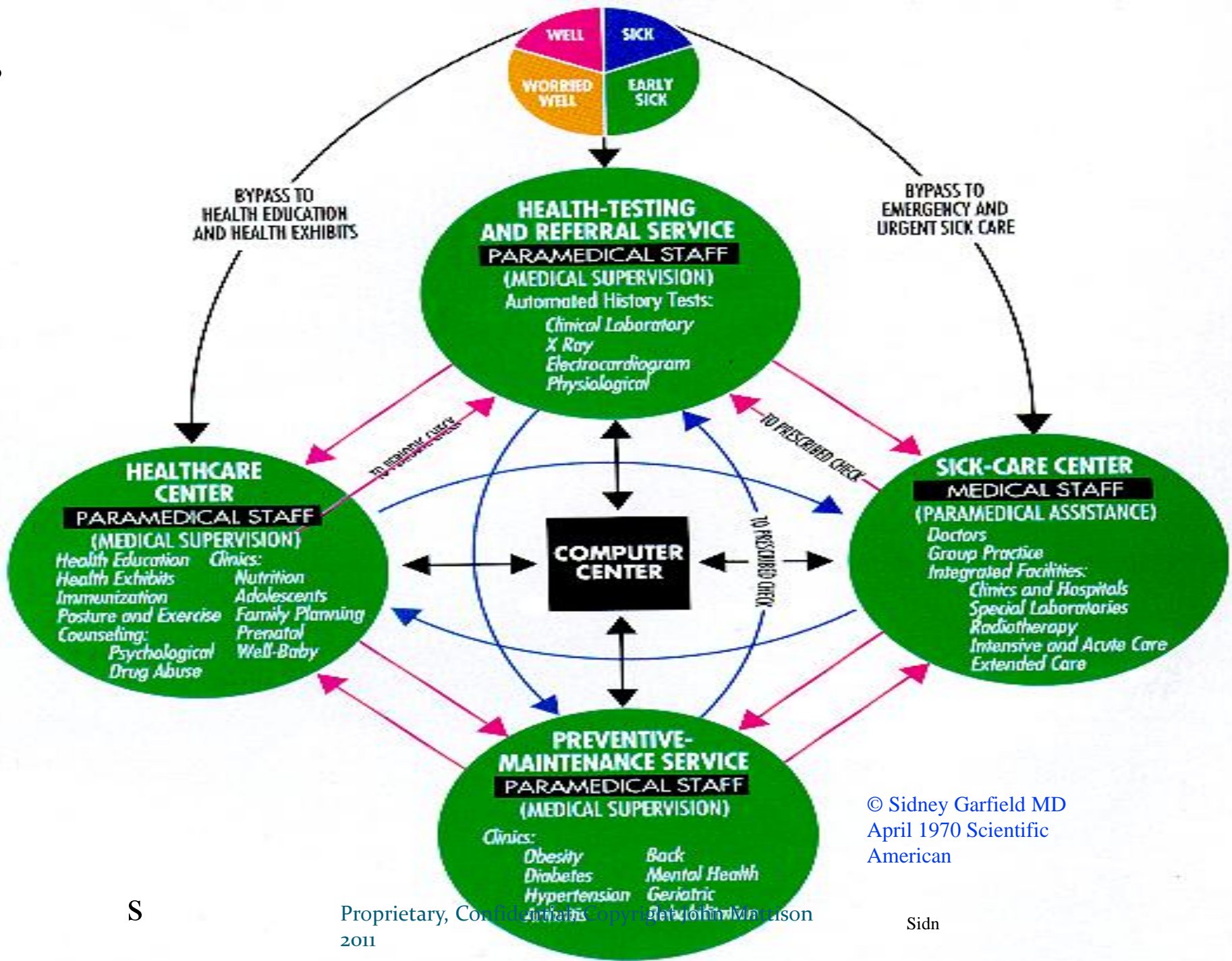
Henry Kaiser brought affordability/access/infrastructure

Sidney Garfield brought quality/caring/integration

Garfield was the Steve Jobs of 20th Century Healthcare, and a
Visionary/Innovator on Steroids

We have implemented Garfield's vision of integration and
comprehensive care and now we have the opportunity to
take it OUTSIDE our walls and into the hands of every
person with mobile healthcare.

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© Sidney Garfield MD
April 1970 Scientific American

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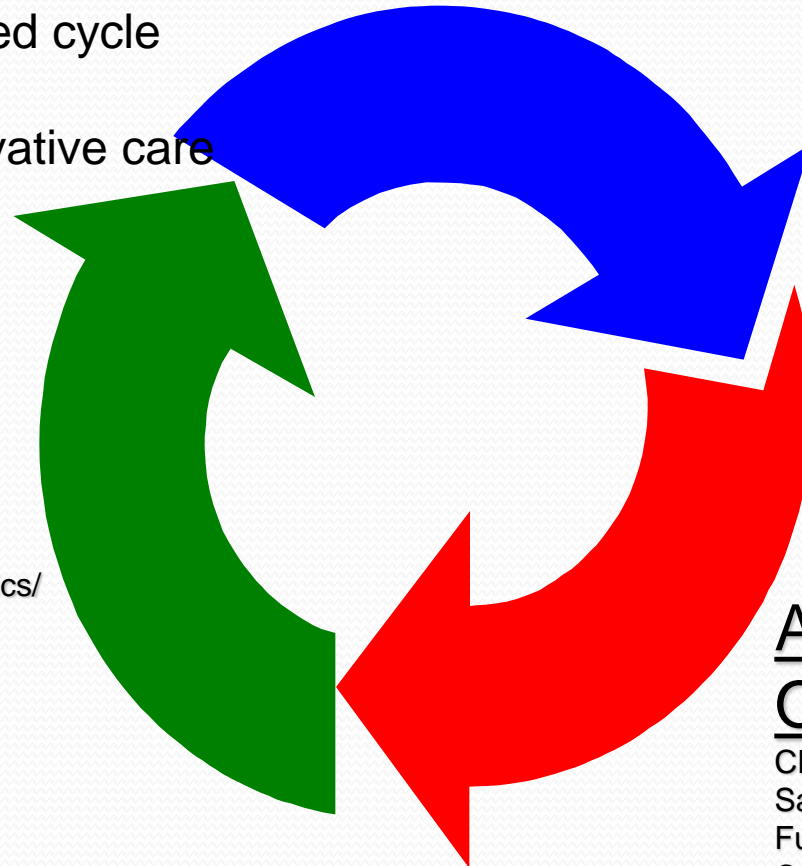
Innovation/Transformation Cycle

The Fastest Learning Organization

Strategic Goal is reduced cycle
time for discovery and
implementation of innovative care
From Decades to Days

Decision Support

Care Processes
Care Practices,
DS, SDM
Modeling
Proteomics/Genomics/
Metabolomics



Clinical Practice and Data Capture

Practice
Process

Analysis of Outcomes

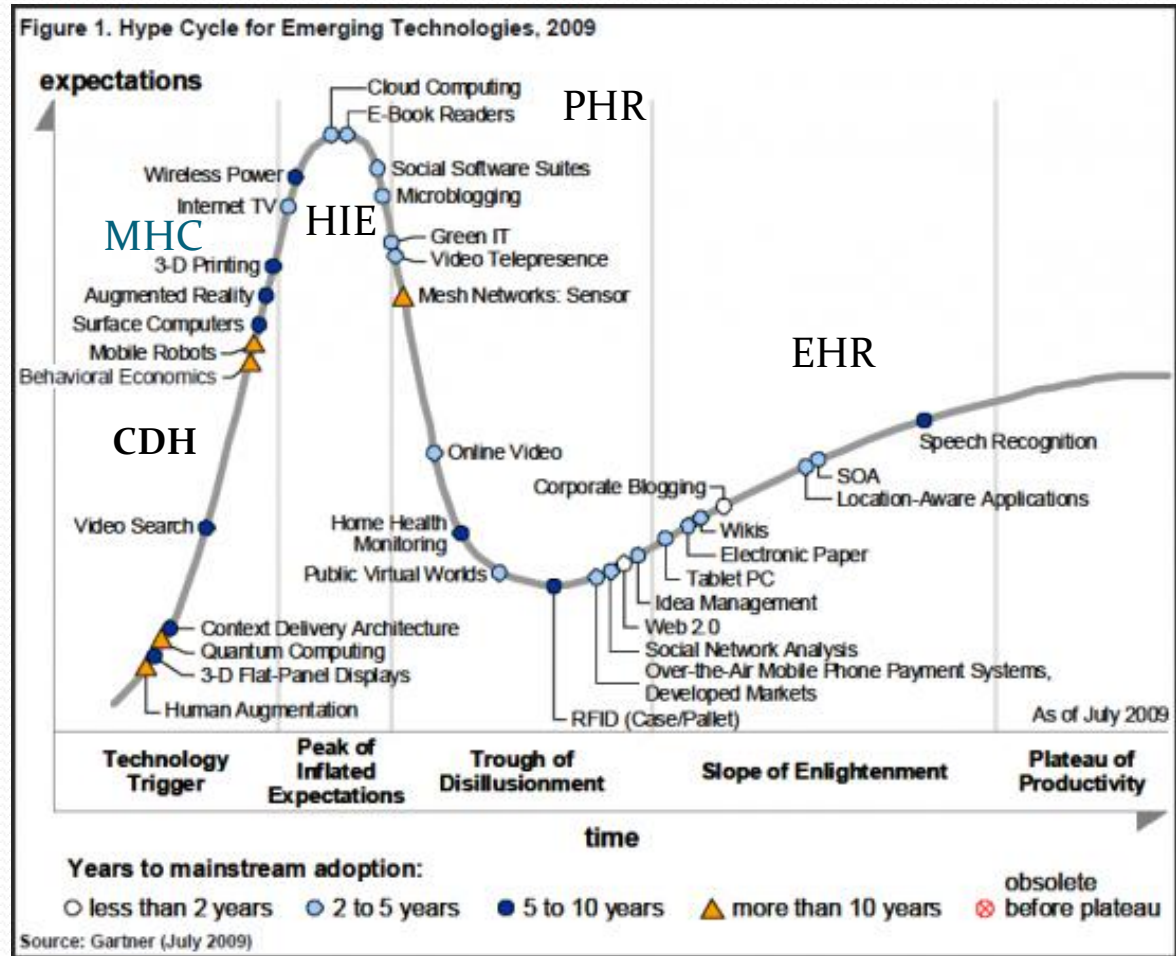
Clinical
Satisfaction
Functional (TOW)
Cost

Deming: You Can't Improve
what you can't measure

Axioms of Innovation:

- Amara's Law: *We tend to overestimate the effect of a technology in the short run, and underestimate the effect in the long run.*
- Corollary of Amara's Law: Leveraging a new disruptive technology requires a strategy for rapid discovery of new opportunities and then rapid implementation and diffusion of those findings. The "O-Gap".

Gartner Hype Cycle



2) KP HealthConnect

Thousands of Passionate Medical Informaticists

- **Compelled** by the Garfield vision
- **Motivated** by our opportunity to automate the vision
- **Dedicated** four years of blood, sweat and tears
- **Designed, deployed and supported** KPHC

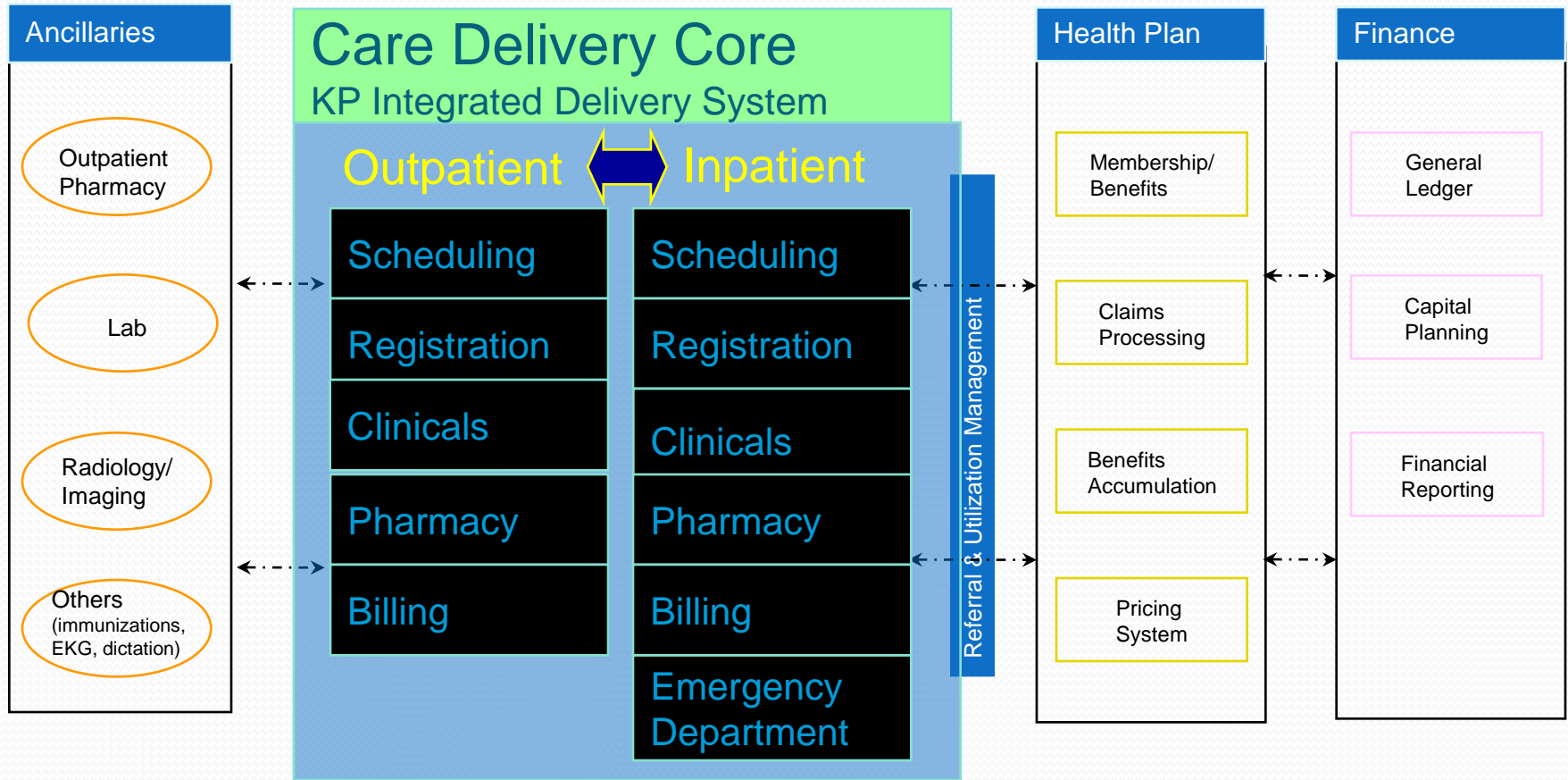
It was a very very large village that created success, with **thousands of innovations along the way.**

Status of KP HealthConnect

- 150,000 users fully live
- 100% of patient charts
- 100% of clinics (most over three years)
- 100% of hospitals (most over two years)
- 3 million hours of training
- 60% of eligible users on PHR
- 20,000 emails/day
- Full “hot failover” between data centers
- >12,000 lives saved through preventive care in a few years

KP HealthConnect Overview - Scope

Web Access Portal



Data Warehouse / EDR Enterprise Data Repository

Also coming: Home Health, Advice Nursing, and other HealthPlan Functions

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It Took a VERY Large Village:

Integrated delivery leverages integrated workflows

BUT, there are many different experiences and perspectives on what is the best approach.

Assiduously listen, observe, discover the local perspectives of over 2,000 users.

Then make the 10,000+ configuration decisions.

How putting the patient first resolves cross-tribal conflicts



3) Health Information Exchange

Brokering macro-cultural collaboration

Desiderata for HIE

1. **Complete integrated record on demand from anywhere to anywhere**
2. **Effective consent management**
3. **Effective semantic interoperability: Rosetta Stones: CMT**
4. **“Trust Framework” with clear rules of the road**
5. **Privacy policy reconciliation: ?Kansas model**
6. **Functional Sustainability Model**
7. **No monetizing data through secondary use**
8. **Effective Consumer voice and control**

Consumer Control over Redaction

- Automated redaction of sensitive data depends upon agreement on what are universally sensitive data.
- NCVHS Identified five general **categories** of sensitive info.
- BUT: Individuals differ dramatically in what they consider sensitive, and that sensitivity changes over time for each individual.
- PCAST proposal to automate sensitivity at the atomic level is based on false assumptions.
- Automated redaction renders a chart not just incomplete, but a dangerous piece of swiss cheese.
- PHR may play a key role in redaction.
- PCAST-like provenance becomes critical in support of PHR-EHR interoperability and
- Economics of privacy and redaction

Challenges for Identity Management

- Politically impossible to require a universal patient identifier
- Risks to quality and integrity of electronic record are real and serious
- Notion of a (Voluntary Identifier for Quality” VIQ advancing

Challenges for De-identification in the Era of Genomics

- 1) Over 500 actionable genetic SNPs that influence treatment in oncology therapy alone
- 2) Over 70,000 SNPs known to affect disease development, course, or response to therapy
- 3) Decision support systems will require tens of thousands of genomic rules as they emerge
- 4) No single human will be capable of reliably applying all those rules
- 5) State of the art medical care will rely on a complete chart and Comprehensive DSS

Challenges for De-identification

- 6) Nearly all clinical research will be specified by the genomic signatures of each participant, and the results will be mass-customized to genetic micro-cohorts,
- 7) Each genomic signature is the most unique identifier for each individual
- 8) The web effectively links multiple "instances" of any record through persistent discoverable links
- 9) Any single link that associates a name with that genomic signature will be accessible to other links
- 10) Ergo: It is increasingly difficult to maintain and operate on a complete record with a genomic signature and “protect” a de-identified state.

The Path Forward

- First and foremost preserve public trust:
Beware monetizing secondary use of data!! (HIEs, EHRs...)
- Let the clinical documentation workflows drive the semantic representations necessary for both interoperability and machine readability:
Beware a purely atomic model.
- Envision an end state where comprehensive decision support systems can operate on a complete record including genomics.
- Discover paths for managing de-identification in the era of genomics.
- Exploit the NW-HIN trust framework, aka DURSA
- Critical role of KP in the CCC

4) Opportunities and Megatrends Transformational Innovation

Never let a good crisis go to waste!!

The Problem

- **High Costs, ?Value:** Collision of supply and demand
- **Threat to National Security:**
Global economy
Military recruits
- **Provider side supply:**
Primary Care Crisis
Half as many medical students go into primary care as 20 years ago
Fee for Service: incentives for “stuff” not wellness
- **Consumer side demand: Diseases of Lifestyle**
Obesity and Diabetes have doubled in the same period of time.
Big Killers: cancer, heart disease, strokes, dementia
Exercise and sleep have significantly declined.
Boomers are doubling the proportion of elderly
How will these trains collide?
What role will HIT play?



LA Times, June 2011

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The Solution:

- Shift the curve from disease management to wellness
- “Treat every patient like family” KP Hawaii
- Exploit our data resources CDA/NLP (in silico, in vivo, SCANNER).
- The “Network is your brain”
- Move the site of care from where the physician lives to where the patient lives
- Use Technology to hide the complexity
- Create the “*behavioral symphony for wellness*”

CC: Three Enablers of Disruptive Technology

- 1) A simplifying technology
 - Competitive, responsive, consumer-driven
e.g. SmartPhone/Tablet, Health Avatars
- 2) A business model innovation
 - New entrants or skill mix adjustment
e.g. Consumer Driven Healthcare
- 3) New value networks
 1. Support and reinforce the disruptive technology
e.g. Social Networks, Gaming

And a burning platform: *healthcare economics*

- How to Revive Health-Care Innovation
Published: March 9, 2009 Authors: Clayton M. Christensen, et.al., Harvard Business School

Motivation Science

Drive by Daniel Pink

- Motivation 1.0
- Motivation 2.0
- Motivation 3.0

Behavioral Symphony for Wellness:

Supporting healthy decisions with Motivation 2.0 and Motivation 3.0

- ***Mobile (platform)***
- ***Social Networking (Motivation 3.0)***
- ***Gaming (Motivation 2.0) (exploit addiction science)***
- ***Health Avatars (Motivation 3.1)***
- ***Social Gaming (Motivation 3.5)***
- **Questions for the next decade:**
 - 1) ***How does will power overtake pill power?***
 - 2) ***Who owns your avatar and what do they want from you?***

Health Avatars

- Virtual self, e.g. second life (bariatric pilot)
- Health Coach
- Information and Communication Broker to the world
 - Role of PUC and Sixth Sense
 - Adaptive Learning Systems
 - Mass Customization

What are some of the MegaTrends?

- **From** episodic care
to continuity of care and consumer experience.
- **From** critical shortage of primary care
to ?surplus of specialty care
- **From** provider given care/support
to consumer-motivated healthcare.
- **From** doing the right thing because individual feel accountable with carrots/sticks
To doing the right thing because of internal “drive”.
- **From** conventional media
To avatars

Question: Who owns your Avatars?

It's all about taking care of each other

- Take care of yourself before you develop diabetes, hypertension, and other diseases of lifestyle
- Take care of the people around you
- Help us prepare for how we make our dream for personal health and wellness real.
- Lets make it easy and available for everyone to enjoy our world of health and wellness through
Mobile
Social
Gaming
Avatars
Mass customization: modality, literacy, cultural context



Francis Peabody, 1927

**“The secret to patient care
is caring for the patient”.**

“And each other” (c2011)



Questions