



Reynolds Risk Score

By: [Brian Naughton](#)

The Reynolds Risk Score will calculate a 10-year risk for heart-attack using information including cholesterol and blood pressure.

- [Discuss this feature](#)
- [Send feedback](#)

- For full details, see <http://www.reynoldsriskscore.org/faq.aspx>
- The method is designed for healthy individuals without diabetes, and is most applicable for individuals between the ages of 30 and 70.
- For those values that you do not know, we estimate a value using your age, sex, and genotype. This data comes from the [NHANES study](#).
- Systolic blood pressure is the higher of the two numbers usually reported (eg 120/80 means 120 systolic, and 80 diastolic.)

Use genetic data from:

Sex: male female

Current smoker: yes no

Either parent had a heart attack before age 60: yes no

Age:

Systolic blood pressure (mmHg):

Total cholesterol (mg/dL): *(including +1.36 due to Ronald's genetics)*

High density lipoprotein (HDL) cholesterol (mg/dL): *(including +5.1 due to Ronald's genetics)*

High-sensitivity C-reactive protein (hsCRP) (mg/L):

Results:

According to the Reynolds Risk Score method, Ronald Galloway's risk of a heart attack over the next ten years is 3.485%.

- If this individual reduced total cholesterol by 40 points, their estimated ten-year risk of a heart attack would be 2.841%.
- If this individual reduced systolic blood pressure by 20 points, their estimated ten-year risk of a heart attack would be 2.269%.
- According to a [2009 paper](#) in the Journal of the American Medical Association, healthy lifestyle habits (normal body weight, not smoking, regular exercise, moderate alcohol intake, consumption of breakfast cereals, and consumption of fruits and vegetables) were associated with a significantly lower risk of heart failure in men.



Snore Reports

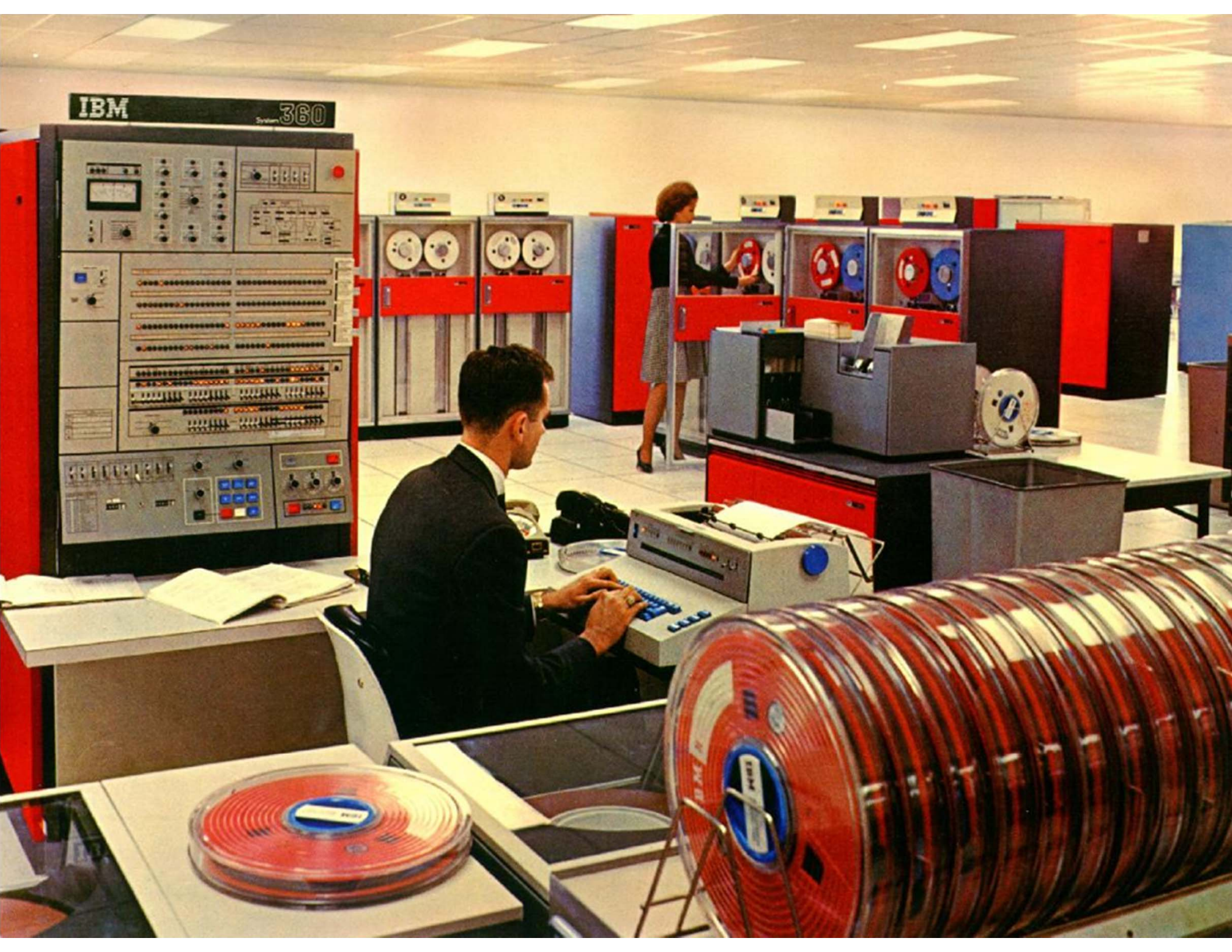


June 17 Mon	Snore Score 48
June 16 Sun	Snore Score 34
June 4 Tue	Snore Score 19
June 3 Mon	Snore Score 21
May 29 Wed	Snore Score 14
April 30 Tue	Snore Score 76
April 29 Mon	Snore Score 92
April 28 Sun	Snore Score 24
April 24 Wed	Snore Score 25
March 28 Thu	Snore Score 129



 UNIVERSITY HOSPITAL

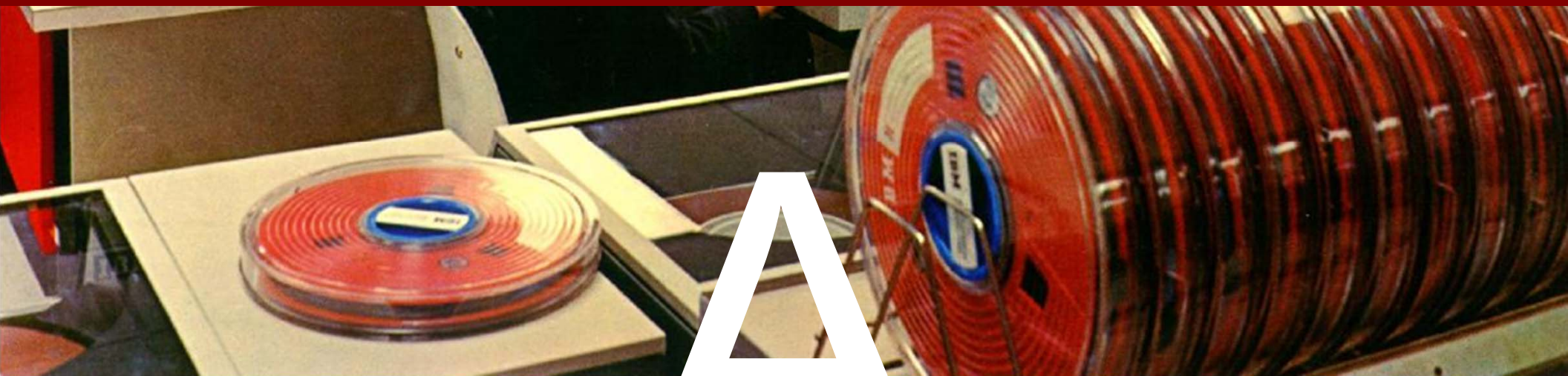




IBM System 360



DAT



The Data-Driven Hospital:
How Artificial Intelligence,
Genomics,
and Predictive Medicine
Will Change Your
Organization

n = ALL

Infe

r

Deduce or conclude (information)
from **evidence and reasoning**
rather than from explicit
statements

BIG DATA

BIG PROMISE

BIG PROBLEMS

BIG BLACK SWAN

THE
BLACK SWAN



The Impact of the
HIGHLY IMPROBABLE

Nassim Nicholas Taleb

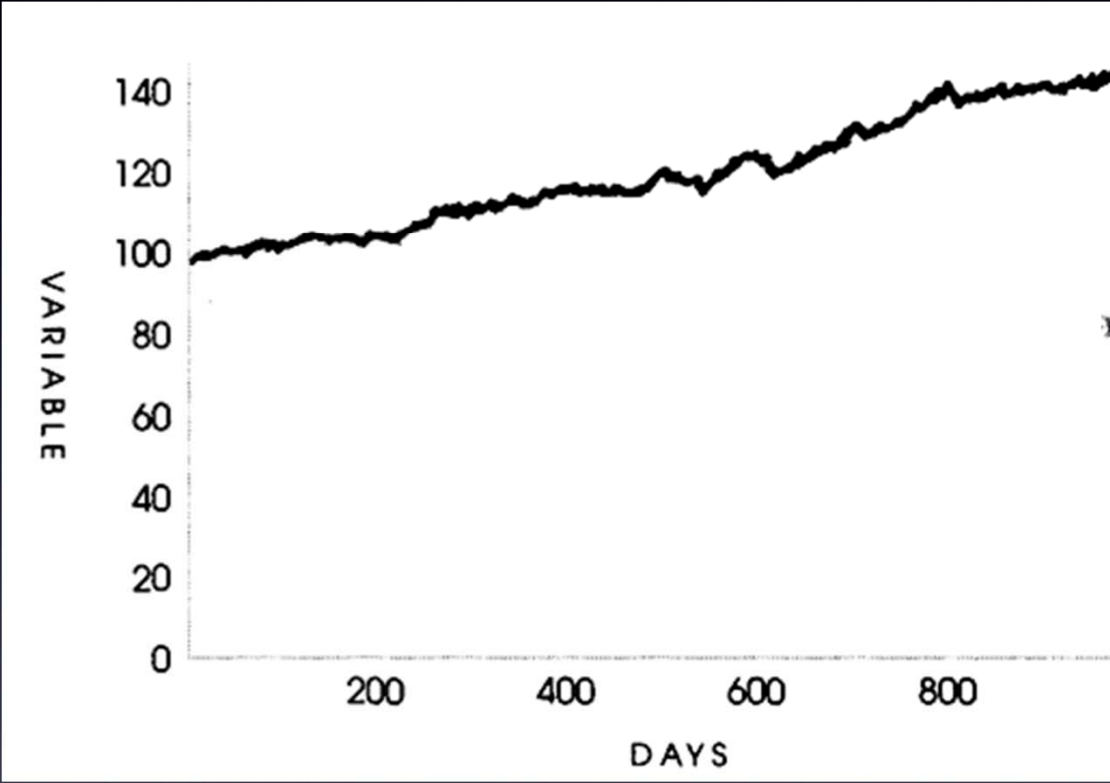
Almost all
consequential events
in history come from
the unexpected

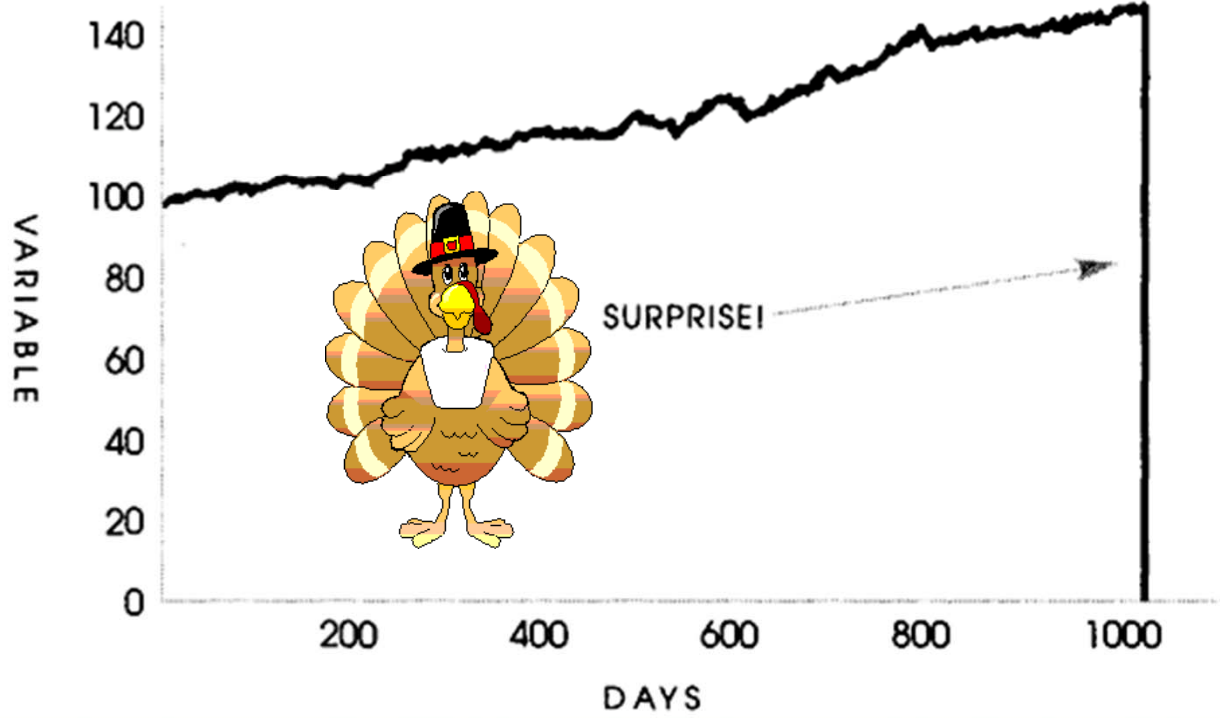
Event has appeared by complete surprise.

Event has a major impact.

Event is 'explained' by human hindsight







World War 1
Computer
Internet



Things we know we
know

Things we know we
don't know

Things we don't know
we don't know

We learn facts and
scorn the abstract

History doesn't crawl...

It jumps

twitter

Home Profile Find Peo



rongalloway

The Drink Fairy just visited my hotel room in Bozeman, Montana. Triple Jim



ALJAZEERA

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Africa

Suicide sparked Tunisia revolution

Tunisia's political upheaval began after a frustrated young man set himself on fire in protest.

Last Modified: 20 Jan 2011 02:40 GMT









뉴스특보

후쿠시마 원전 폭발

YTN HD

"바다에 떨어진 핵연료봉 수거" 파악한 뒤 주민 안전 추가조치"

◆ 주요

기트 (UAE) 공식 방코스닥 518.55 ▼3.62

The Japanese Nuclear
Commission had the
following goals set in
2003:

The mean value of acute fatality risk by radiation exposure resultant from an accident of a nuclear installation to individuals of the public, who live in the vicinity of the site boundary of the nuclear installation, should not exceed the probability of about 1×10^{-6} per year (that is , at least **1 per million years**)".

Policy designed 8
years ago....

Investors split over nuclear future

By Ruth Sullivan

Published: March 27 2011 13:24 | Last updated: March 27 2011 13:24

Radiation leaks from Japan's Fukushima nuclear plant, following the recent earthquake and tsunami, have cast a shadow over the global nuclear industry, causing governments to rethink their energy policies.

Germany has temporarily closed a third of its nuclear power plants and China, which has ambitious nuclear power expansion plans, is reviewing approval for future roll-out. Other countries are still digesting events before taking action.

But what is the effect of Japan's **nuclear damage** on energy investment views? As yet the full extent of the crisis is unclear but opinion in the investment community is divided over whether countries will continue to rely heavily on uranium to provide energy for reactors, shift to coal and gas or to alternative energy sources such as wind or solar.

▼ EDITOR'S CHOICE

[Sovereign wealth fund assets rise to \\$4,000bn](#) - Mar-08

[Prospect of ECB interest rate rise divides investors](#) - Mar-07

[Opec members rush to raise oil output](#) - Mar-08

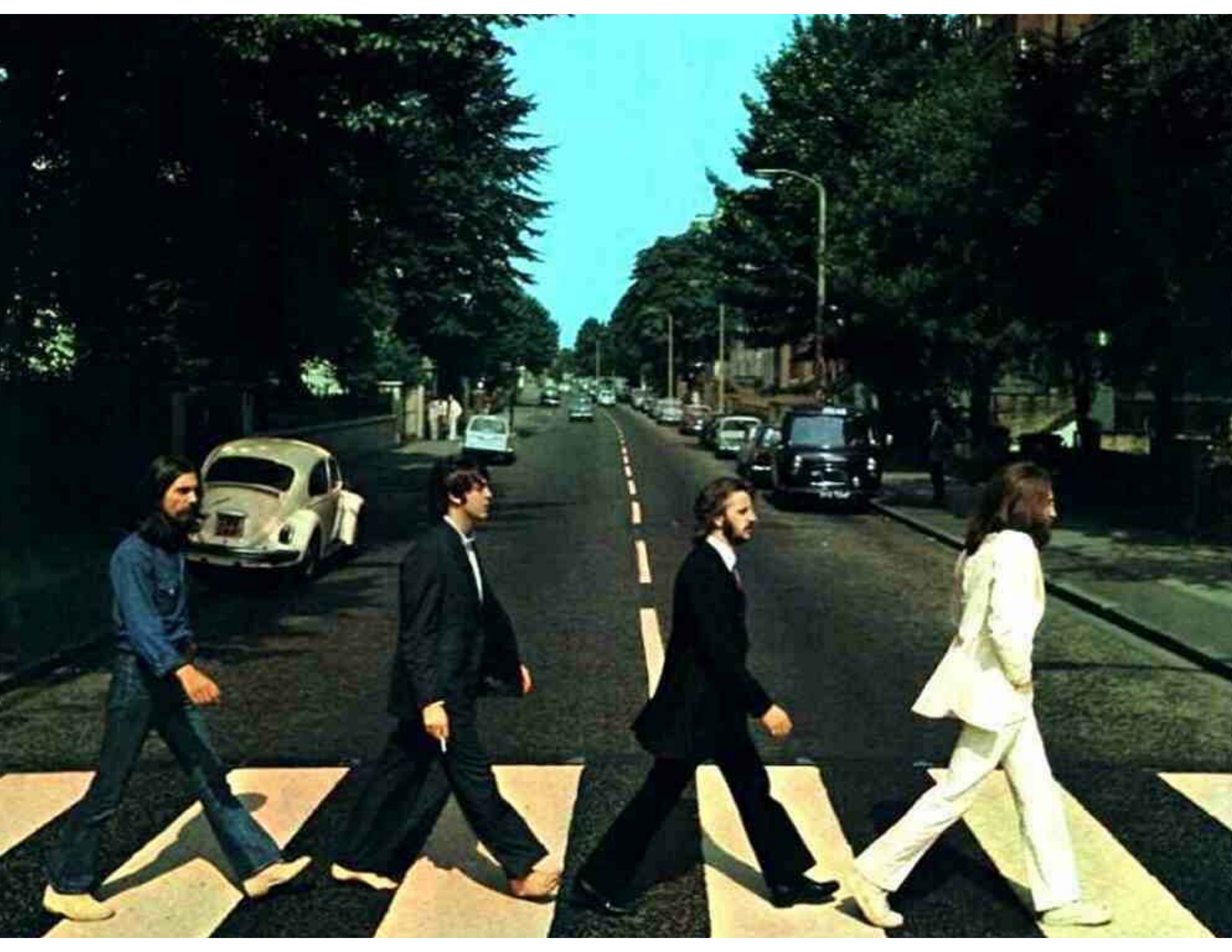
[Insider trading or legitimate analysis?](#) - Mar-06



Huge anti-nuclear protests hit the streets

Welcome to
COLORADO







EMI



Godfrey Hounsfield





NETFLIX

way

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for sale

event calendar

S	M	T	W	T	F	S
23	24	25	26	27	28	29
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19

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[privacy policy](#) updated

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[craigslist open source](#)

[craigslist blog](#)

[best-of-craigslist](#)

community

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- [general](#) [politics](#)
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- [events](#) [classes](#)

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- [women seek women](#)
- [women seeking men](#)
- [men seeking women](#)
- [men seeking men](#)
- [misc romance](#)
- [casual encounters](#)
- [missed connections](#)
- [rants and raves](#)

discussion forums

- | | | |
|-------------------------|-------------------------|--------------------------|
| adopt | haiku | philos |
| apple | health | photo |
| arts | help | p.o.c. |
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| autos | housing | psych |
| beauty | jobs | queer |
| bikes | jokes | recover |
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for sale

- | | |
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| barter | atv/utv/sno |
| bikes | auto parts |
| boats | beauty+hlth |
| books | cars+trucks |
| business | cds/dvd/vhs |
| computer | cell phones |
| free | clothes+acc |
| furniture | collectibles |
| general | electronics |
| household | farm+garden |
| jewelry | garage sale |
| materials | heavy equip |
| rvs+camp | motorcycles |
| sporting | music instr |
| tickets | photo+video |
| tools | toys+games |
| wanted | video gaming |

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- [tv / film / video](#)
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- [ETC]
- [part-time]

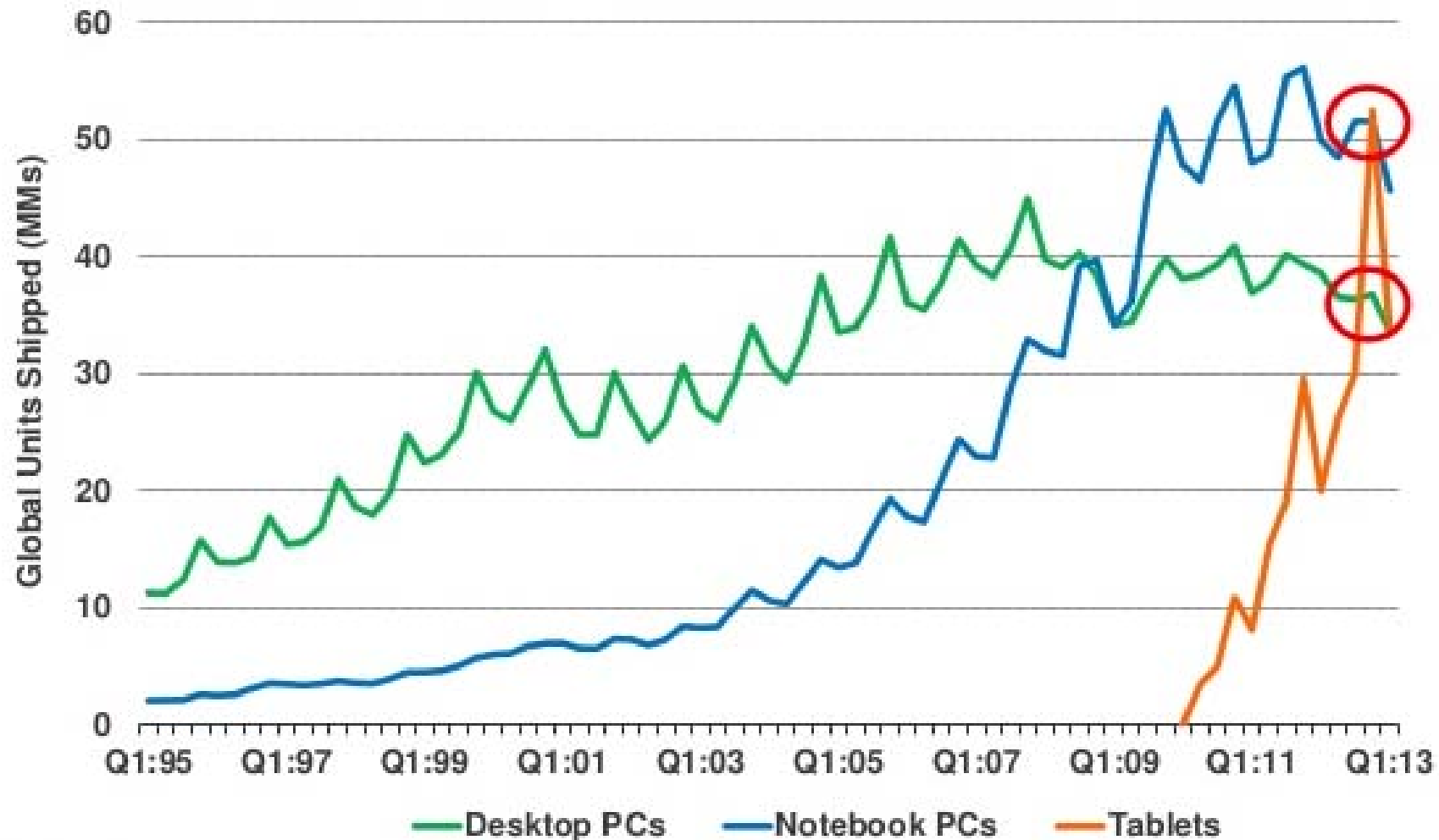
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- [tri-cities](#)
- [valdosta](#)
- [winston-salem](#)

us cities

us states

Tablet Shipments = Surpassed Desktop PCs & Notebooks in Q4:12, < 3 Years from Intro

Global PC (Desktop / Notebook) and Tablet Shipments by Quarter
Q1:95 – Q1:13



#1 *NEW YORK TIMES* BEST-SELLING AUTHOR

MICHAEL
LEWIS



A WALL STREET REVOLT

FLASH
BOYS

Businesses are
transforming into **DATA**
businesses with Black
Swan results

1950'

S

John Hancock[®]

LIFE INSURANCE

600

MB

1960'



AMERICAN AIRLINES
SABRE
Reservation System by **IBM**

807

MB

1970'

S



80

GB

1980'

CITICORP ®

450

GB

1990-



180

TB

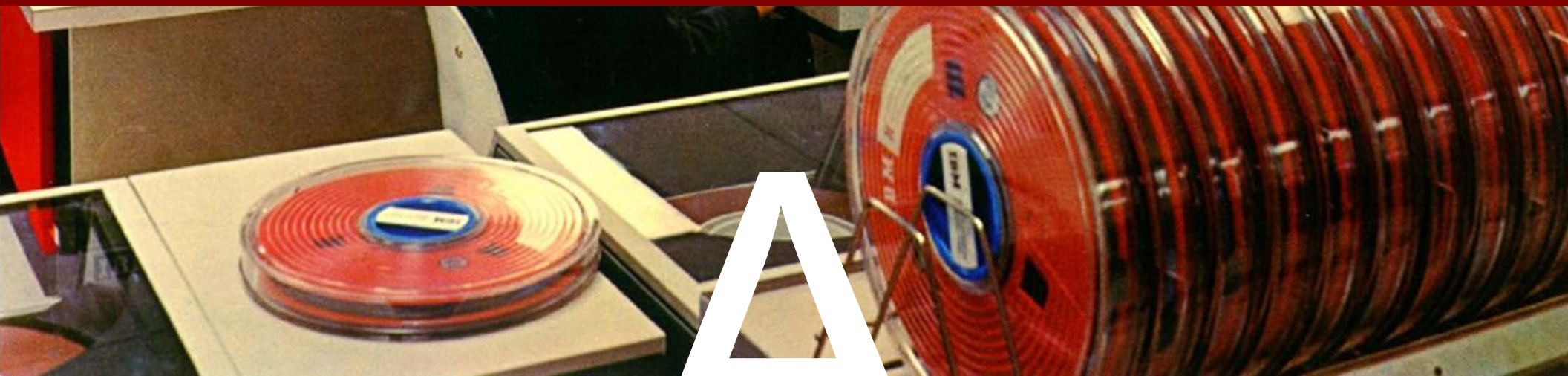


What does WalMart
do?

All WalMart does is
eliminate waste



DAT





SHRINKAGE

SCALE

Wal-Mart is not a store

Wal-Mart is an I.T. Company



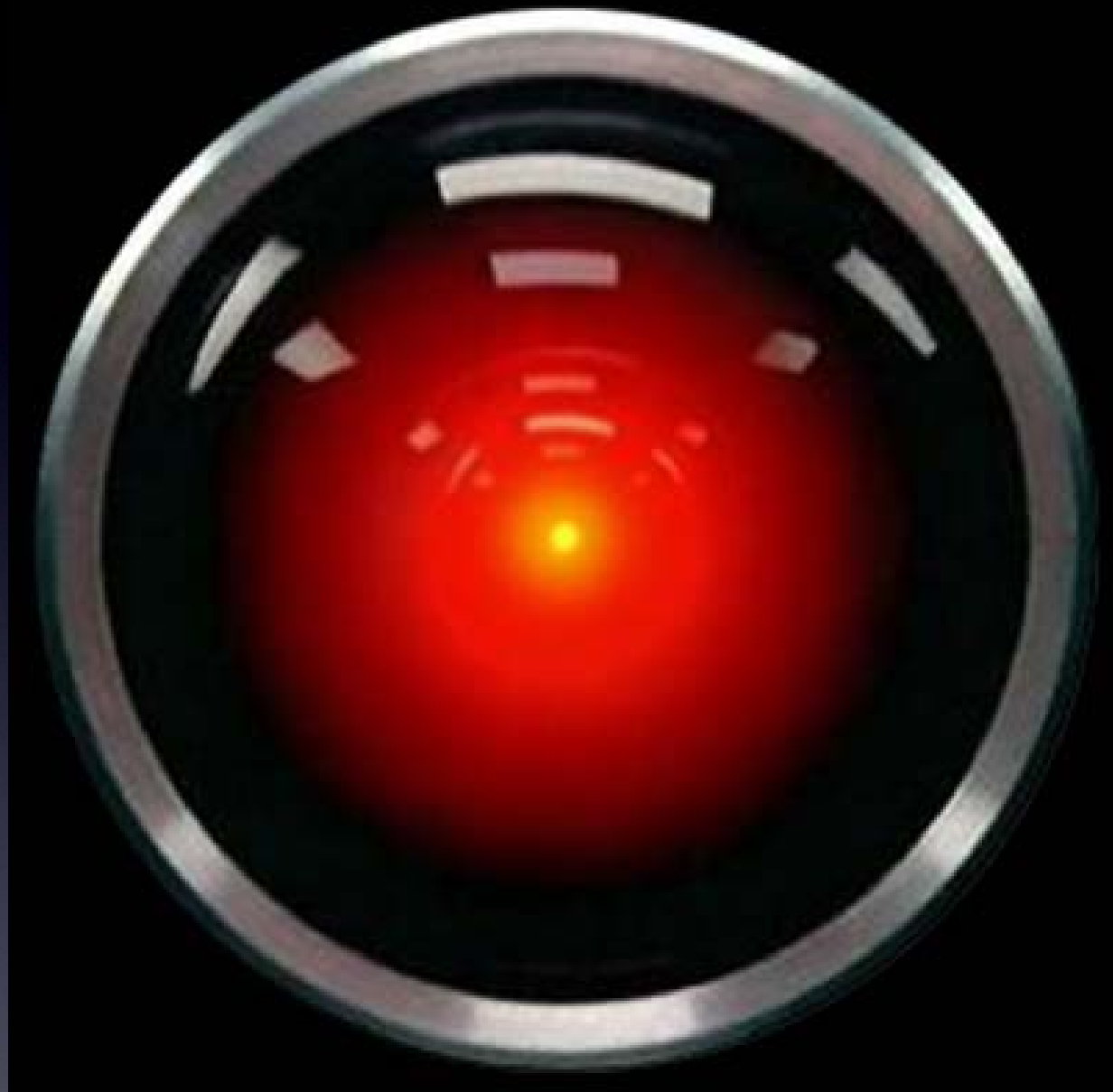
Hospitals & WalMart

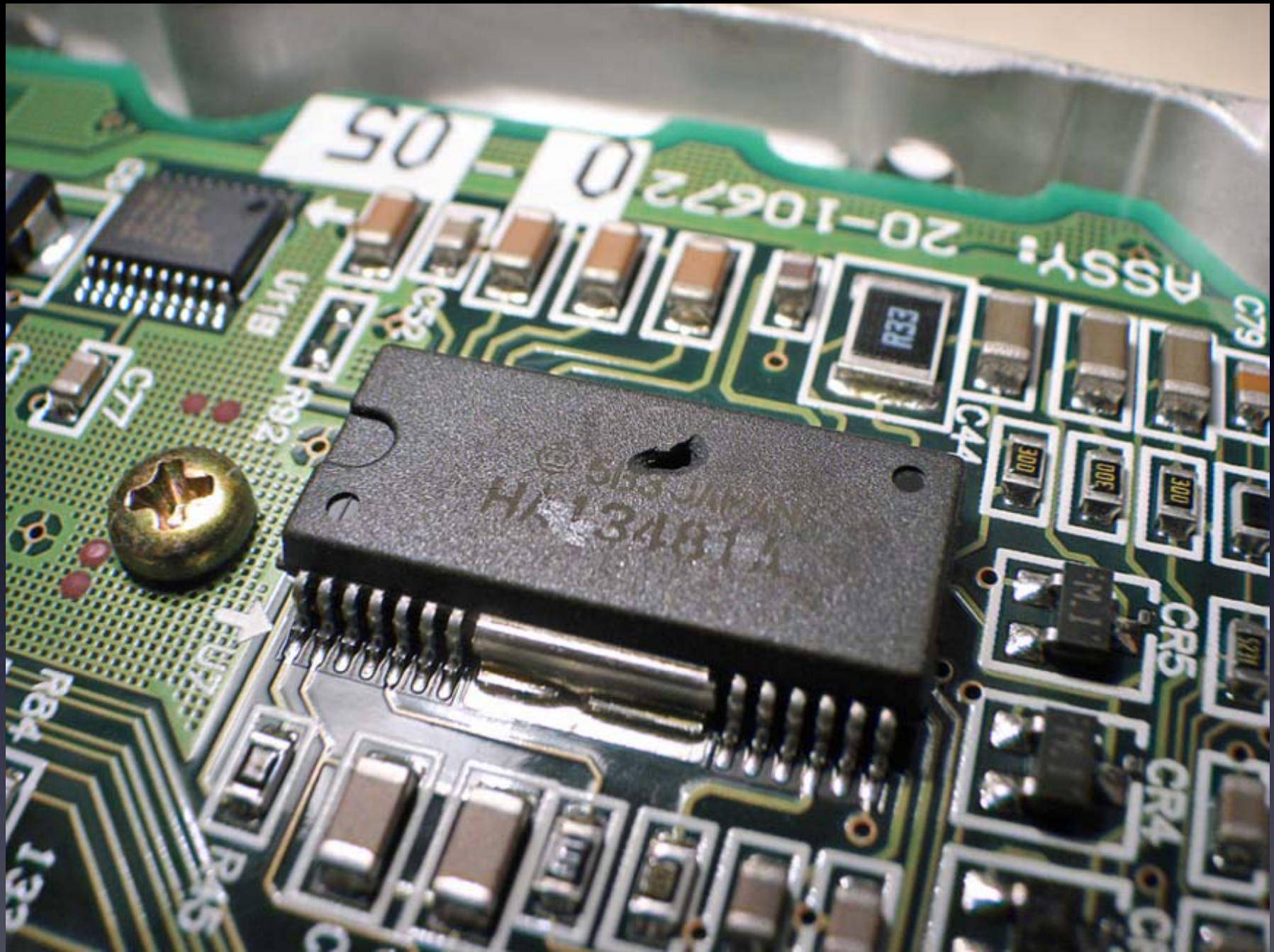
Both deal with lots of
people

Both have lots of interacting
departments

Both use/have lots of
products

Both have to optimize
space









SCALE



Regal Wide Body Steel Casket

- 4" wider than standard sizes
- High-gloss finished with reinforced swing handles
- Hand-sewn crepe interior...

\$1,199.00

Availability:

- Online
Out of Stock Online
- Not Sold In Stores



Lady de Guadalupe Steel Casket



- 18 ga stainless steel
- High-gloss slate-blue with silver pinstripping
- Hand-sewn crepe interior
- Made i...

\$895.00

Availability:

- Online
Out of Stock Online
- Not Sold In Stores



Pieta and Last Supper Steel Casket

- Made of Legacy premium 18-gauge steel
- High-gloss finish with sculpted fixtures
- Hand-knit velvet interior

\$1,599.00

Availability:

- Online
Out of Stock Online
- Not Sold In Stores



Lovely in All Ways Stainless Steel Casket

- 18-gauge steel
- Hand-crafted, high-gloss, brushed-finished highlights
- Pink interior with rose design

\$1,799.00

NEW

Availability:

- Online
- Not Sold In Stores



Target's baby coupons

n = ALL

Infe

r

Deduce or conclude (information)
from **evidence and reasoning**
rather than from explicit
statements

2010'



100

PB

n = ALL

Infe

r

Deduce or conclude (information)
from **evidence and reasoning**
rather than from explicit
statements

B R A D P I T T



MONEYBALL

JONAH HILL PHILIP SEYMOUR HOFFMAN

BASED ON A TRUE STORY

COLUMBIA PICTURES PRESENTS A SCOTT RUDIN/MICHAEL DE LUCA/RACHAEL HOROVITZ PRODUCTION A FILM BY BENNETT MILLER

 UNIVERSITY HOSPITAL

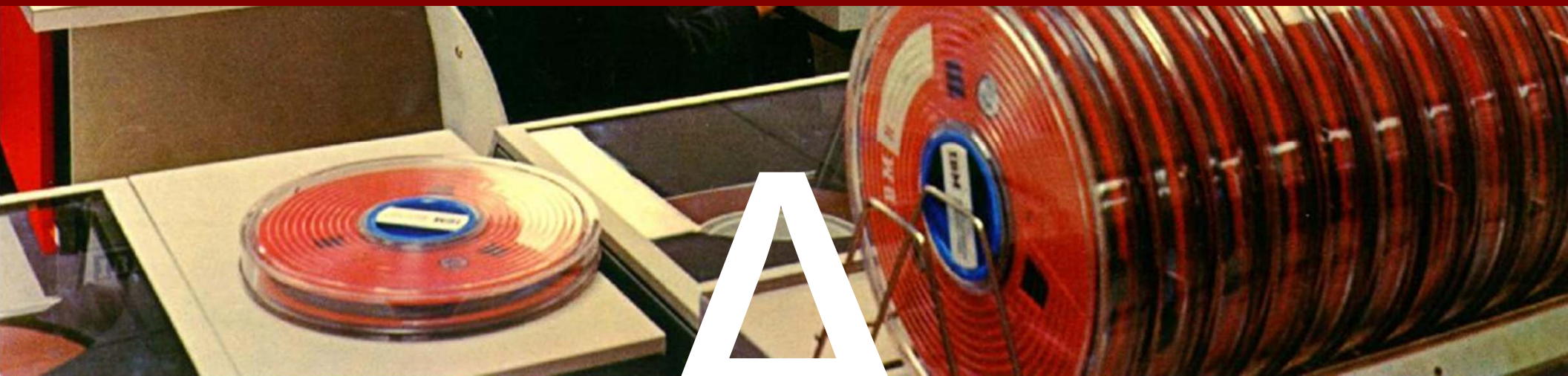


Hospitals are becoming I.T. Institutions



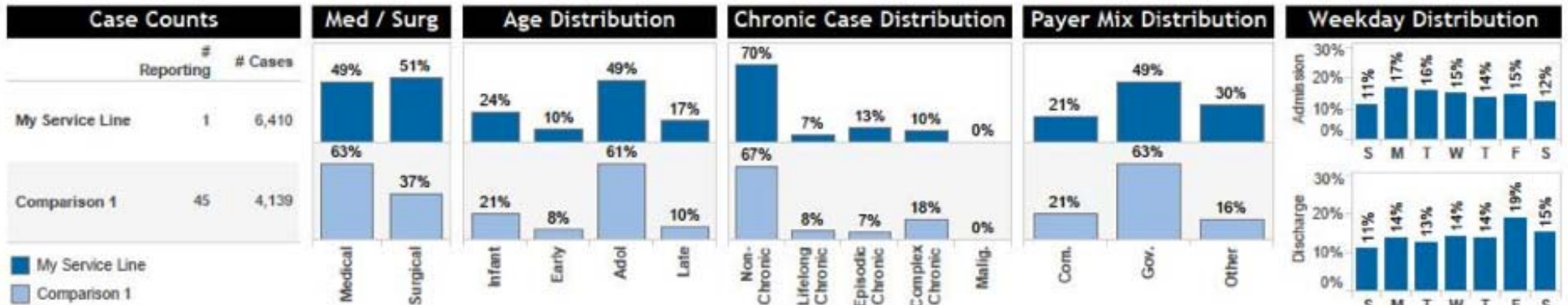


DAT



Summary Service Line Report -- Pediatric Cardiac Care (Q1--Current Year)

Period / Date: April 2012
 Medical / Surgical: (All)



Personalized medicine. Per-patient prediction and analytically enhanced diagnosis drives individual clinical treatment decisions

Hospital administration. Analytics detects and recoups loss due to fraud and waste

Healthcare marketing. From medical suppliers to healthcare screening service providers, the performance of industry enterprises hinges on analytically targeted marketing

Other applications include predicting per-patient disease progression, mortality risk, availability of clinical trial participants, consumer prescription adherence, and more

Predictiv e Medicine

(12) **United States Patent**
Spiegel et al.

(10) **Patent No.:** **US 8,615,473 B2**
(45) **Date of Patent:** **Dec. 24, 2013**

(54) **METHOD AND SYSTEM FOR
ANTICIPATORY PACKAGE SHIPPING**

(75) Inventors: **Joel R. Spiegel**, Woodinville, WA (US);
Michael T. McKenna, Bellevue, WA
(US); **Girish S. Lakshman**, Issaquah,
WA (US); **Paul G. Nordstrom**, Seattle,
WA (US)

(73) Assignee: **Amazon Technologies, Inc.**, Reno, NV
(US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **13/594,195**

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,055,520	A	4/2000	Heiden et al.
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7,222,081	B1	5/2007	Sone
7,610,224	B2	10/2009	Spiegel
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8,086,546	B2	12/2011	Spiegel et al.
2001/0037316	A1	11/2001	Shiloh

(Continued)

FOREIGN PATENT DOCUMENTS

JP	2002109263	4/2002
JP	2003067645	3/2003

A method and system for **anticipatory** package shipping are disclosed. According to one embodiment, a **method** may include packaging one or more items as a **package** for eventual shipment to a delivery address, selecting a destination geographical area to which to ship the package, shipping the package to the destination geographical area **without completely specifying the delivery address at time of shipment**, and while the package is in transit, completely specifying the delivery address for the package.

They ship it to you
before you order it.

Doubling Of Medical Knowledge

1750 - 1900: 150 years

1900 - 1950: 50 years

1950 - 1960: 10 years

1960 - 2009: 5 years

2020 - Every 73 Days

Exponential Growth Of Medical Knowledge

Increased Computing Power

Art Of Medicine

Science Of Medicine

May

- **NEW** May 1, [Successful Applications of Customer Analytics](#), Philadelphia, PA, USA.
- May 1-2, [Gaming Analytics Innovation Summit](#), Reshaping the Industry with Data Insight. San Francisco, CA, USA.
- May 1-2, [Sentiment Analysis Innovation](#), Leverage Social Signals to Business Advantage. San Francisco, CA, USA.
- May 1-2, [Social Media & Web Analytics Innovation](#), Simplify Digital Analytics. San Francisco, CA, USA.
- May 7-9, [PASS Business Analytics Conference](#). San Jose, CA.
- **NEW** May 8-9, [DataEDGE](#), Are you and your organization taking advantage of the opportunities created by today's flood of new data? Berkeley, CA, USA.
- May 12-15, [eMetrics](#). Toronto, Canada.
- May 12-15, [Predictive Analytics World](#). Toronto, Canada.
- May 13-16, [PAKDD-2014: The 18th Pacific-Asia Conference on Knowledge Discovery and Data Mining](#). Taiwan.
- May 14-15, [Predictive Analytics Innovation Summit](#), Fostering Innovation in Predictive Analytics, London, UK.
- May 14-15, [Big Data Innovation Summit](#), With Big Data Comes Big Responsibility, London, UK.
- May 14-15, [Big Data & Analytics in Healthcare](#), Improve Outcomes with Big Data, Philadelphia, PA, USA.
- **NEW** May 19-21, [The Future of Consumer Intelligence](#), The Convergence of Technology, Social & Marketing Sciences, and the Humanization of Data, Universal City, CA. Register with code FOCI14KDNUGGETS & Save 20% off the standard rates.
- May 21-22, [Chief Data Officer Summit](#), Creating a Data-Driven Culture to Drive Success. San Francisco, CA, USA.
- May 21-22, [Business Analytics Innovation Summit](#), Gain Insights, Drive Business Planning. Chicago, IL, USA.
- May 21-22, [Business Intelligence Innovation Summit](#), Delivering Bottom Line Impact Through Innovative Business Intelligence. Chicago, IL, USA.
- May 22-23, [Open Data Innovation](#). Turning Raw Data Into Actionable Intelligence. Boston, MA, USA.
- May 27-31, [The Second IEEE/ASE International Conference on Big Data Science and Computing](#). Stanford, CA, USA.



The unit is still operational,
Dave, but it will fail within
seventy two hours.

Big Data & Analytics in Healthcare

“Improve Outcomes with Big Data”



Request an Invitation



Download Brochure

May

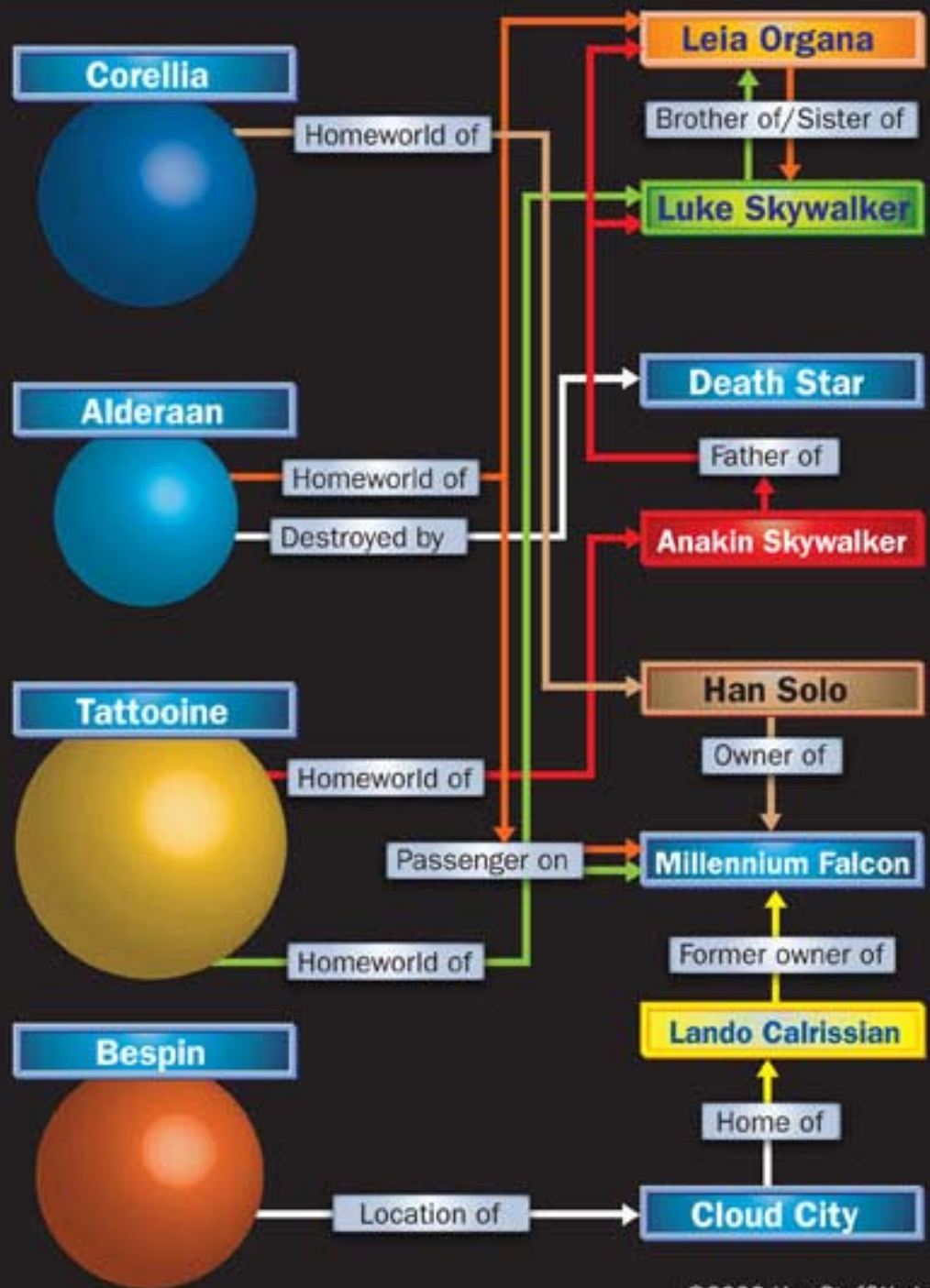
15-16

Philadelphia, 2014

[See all summits](#)

SEMANTICS + DATA ANALYSIS

How Semantic Web Works



Browse
DVDsBrowse
InstantYour
QueueMovies
You'll ♥Friends &
CommunityDVD Sale
\$5.99

Movies, actors, direct

See

Suggestions (387)

Suggestions by Genre ▾

Rate Movies

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Suggestions by Genre

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from 409 ratings.

★★★★★ FOREIGN SUGGESTIONS (139)

< previous | 1 2 3 4 5 | next



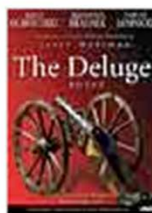
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Not Interested

[Sequins](#)

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Add All



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[Zelary](#)

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[Das Boot](#)[Red](#)[Dirty Pretty Things](#)

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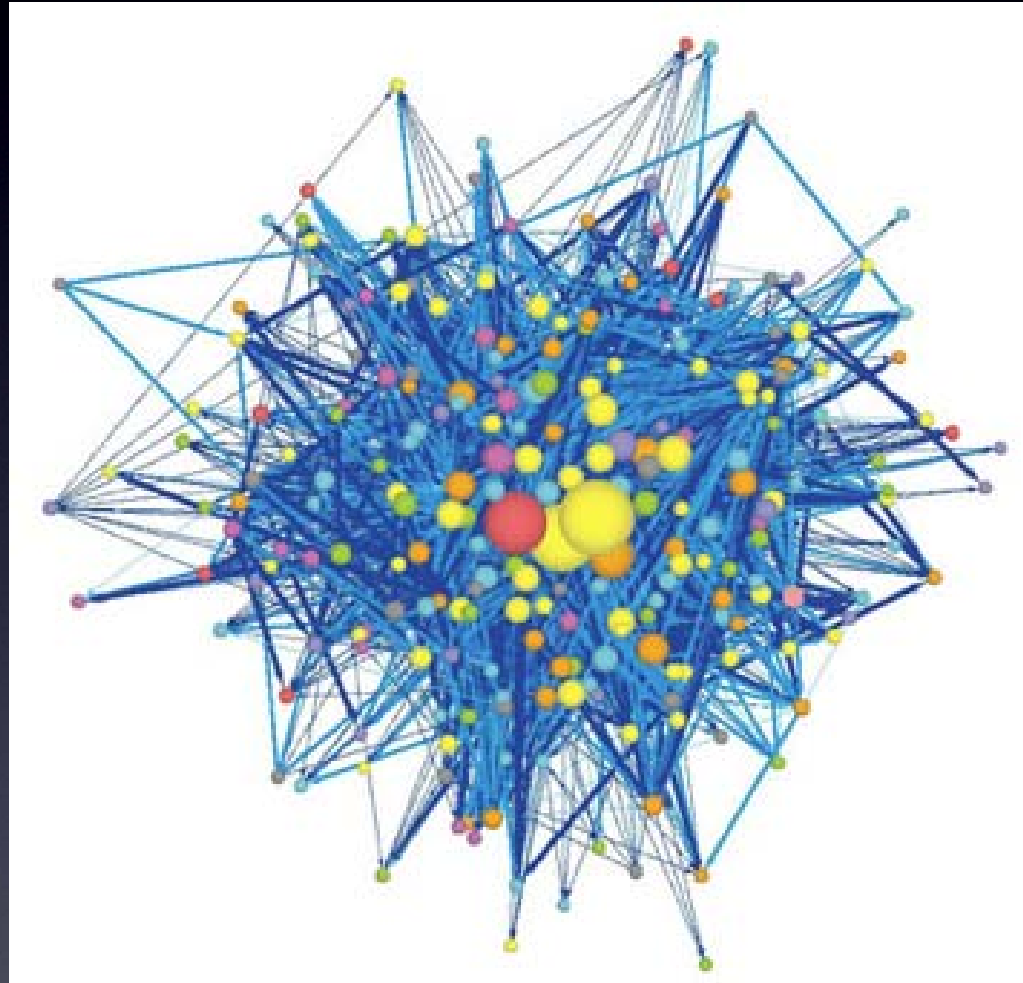
Not Interested

[Woman in the Dunes](#)

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[2001: A Space Odyssey](#)[All About Eve](#)[Apocalypse Now](#)

Metcalfe's Law

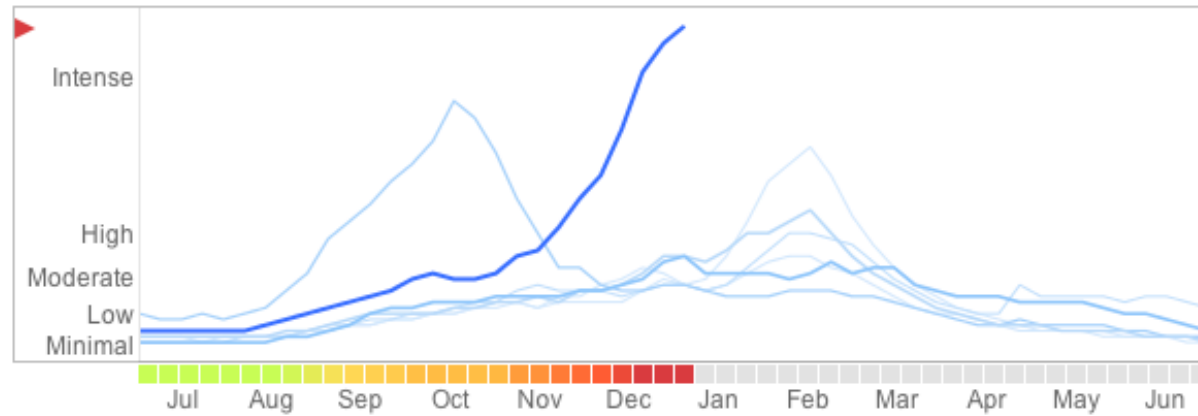


Explore flu trends - United States

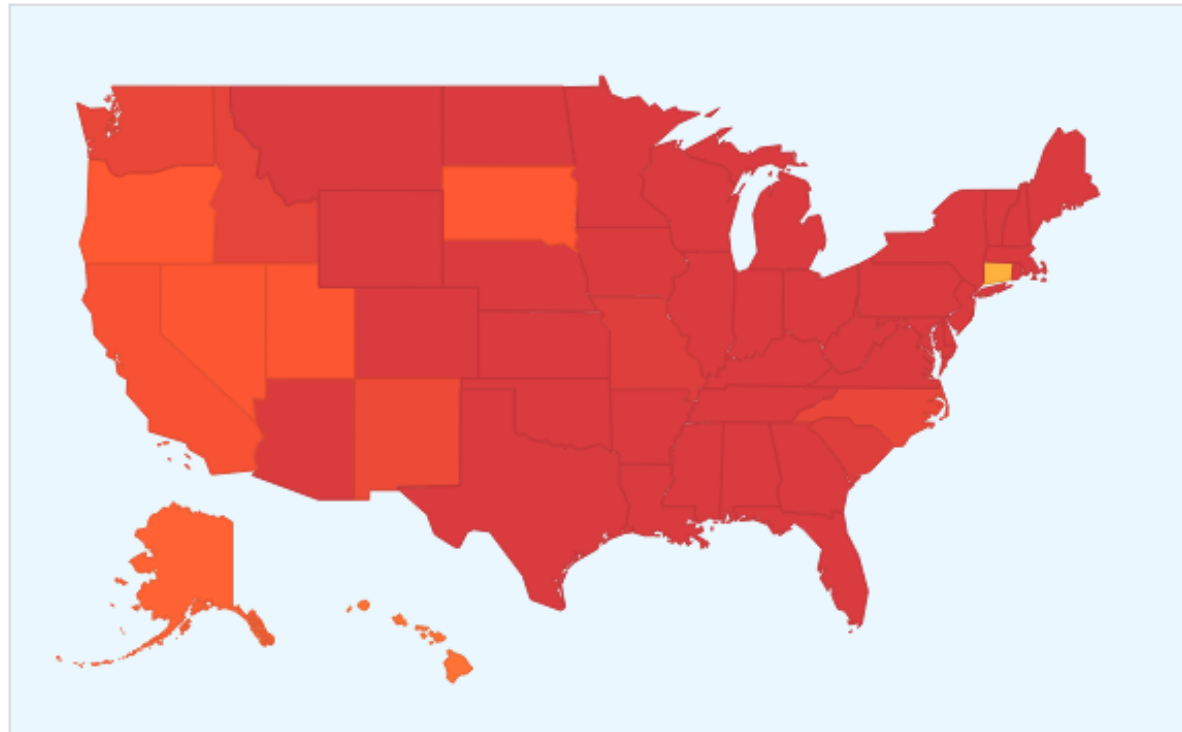
We've found that certain search terms are good indicators of flu activity. Google Flu Trends uses aggregated Google search data to estimate flu activity. [Learn more »](#)

National

● 2012-2013 ● Past years ▼

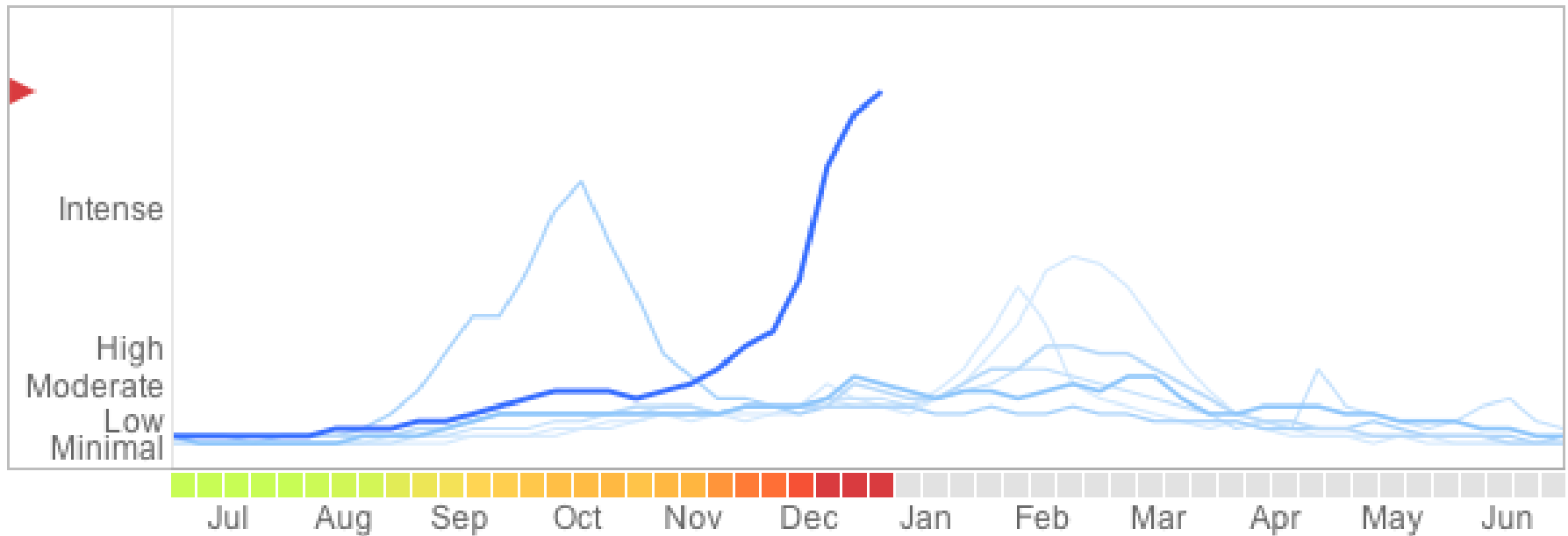


States | [Cities](#) (Experimental)



United States > Minnesota

● 2012-2013 ● Past years ▼



Google Flu Trends: Grossly misleading or misunderstood science?

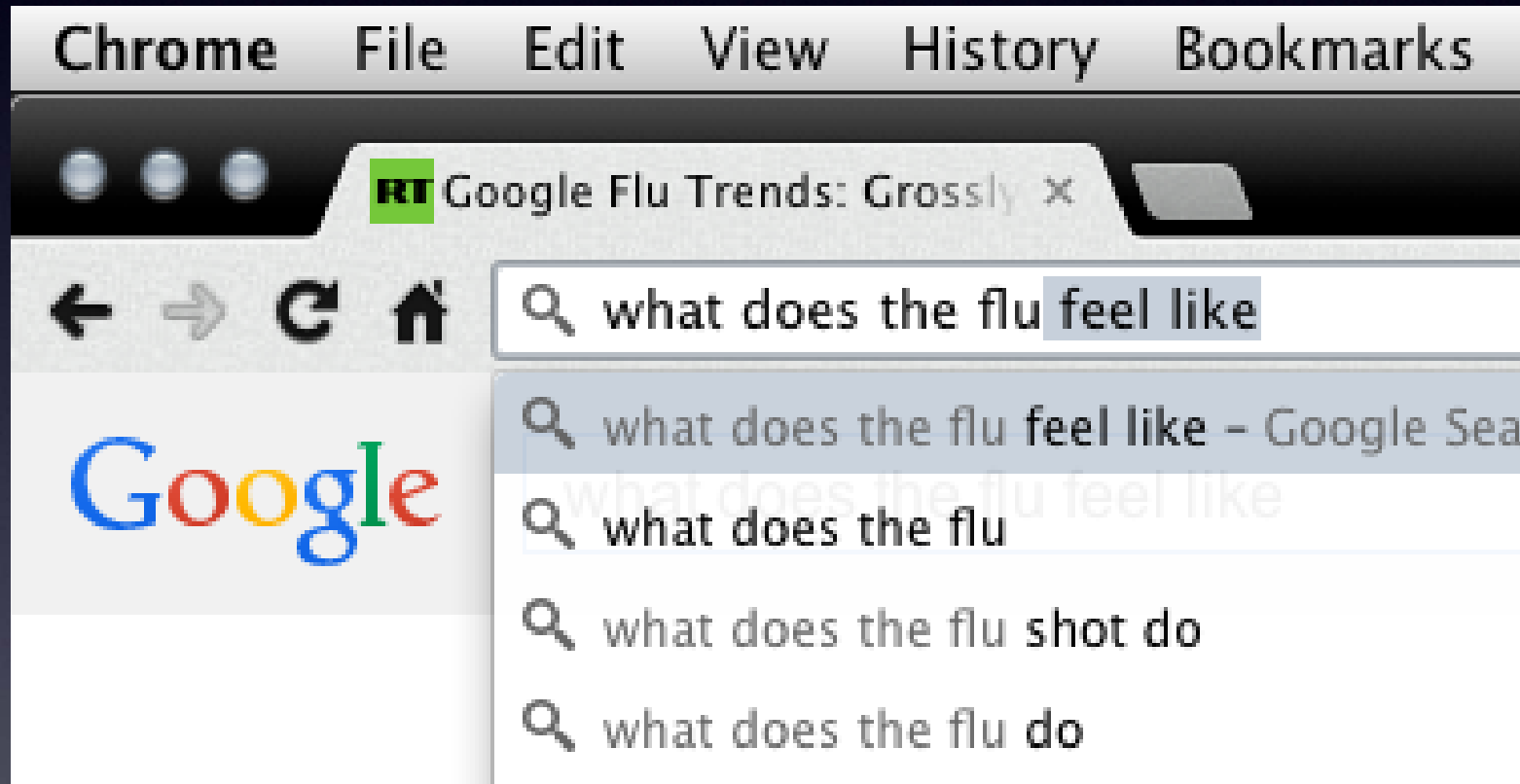
Published time: March 29, 2014 14:57

[Get short URL](#)



Reuters / Jessica Rinaldi

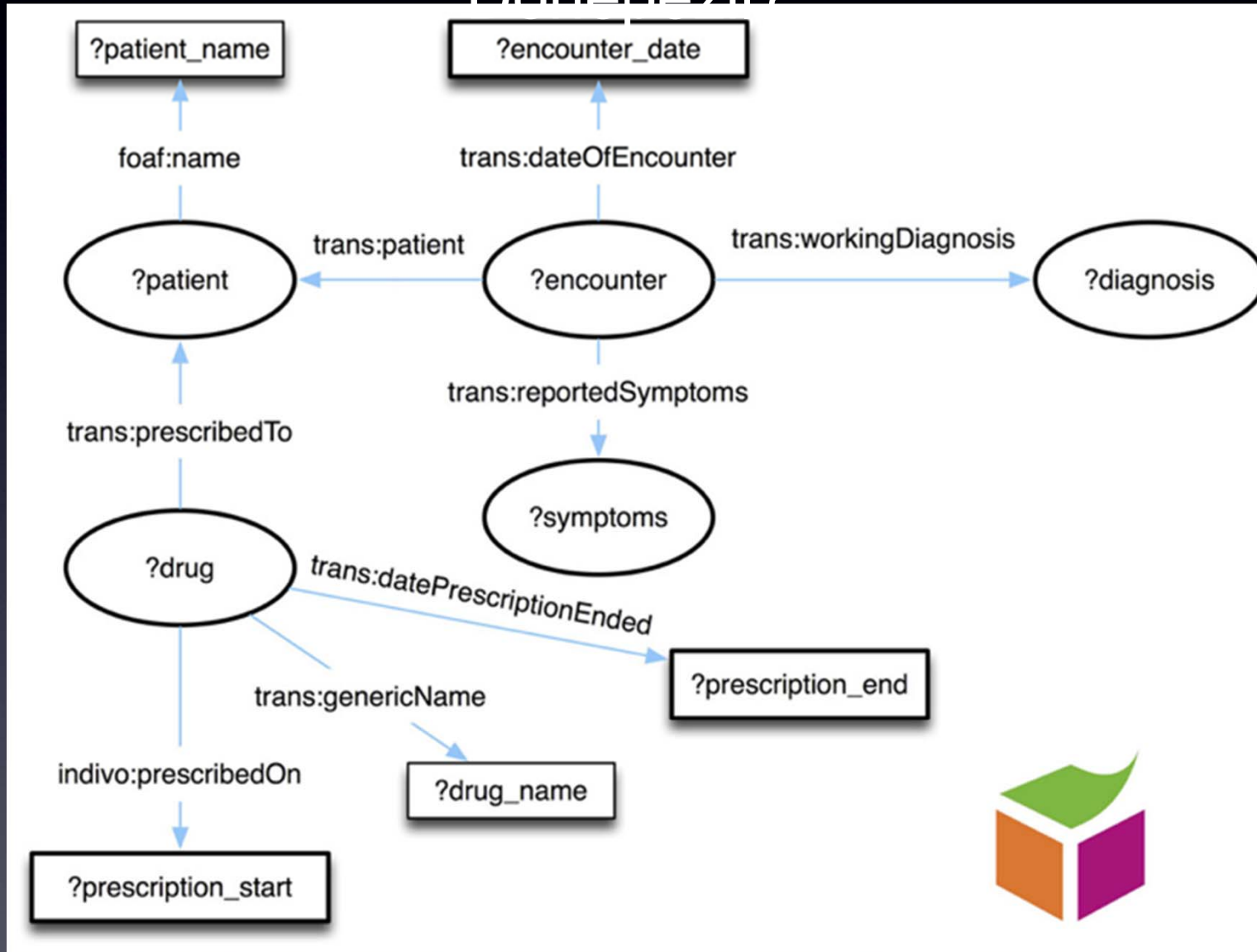
Autosuggest skewed models, turned big data into small data



The technical **criticism** of Google Flu Trends is that it is **not using a broader array** of data analysis tools.

Indeed, the analysis shows that combining Google Flu Trends with C.D.C. data, and applying a few tweaking techniques, works best. **“The mash-up is the way to go,”** Mr. Lazer said.

The **query** can be formulated as
“How many patients experienced
side effects while taking
Donepezil?”



Outbreaks monitored with Facebook

Relaxnews

Tuesday, 18 May 2010

▼ SHARE | PRINT | EMAIL | A A A TEXT SIZE

The web and social networking has gotten a bad rep lately from [research](#) proving it ups anxiety, likelihood of obesity and the latest privacy battle between Facebook executives and users. However social scientists have found a novel way to use social networking to map contagious outbreaks.

Nicholas A. Christakis, MD, PhD, MPH, an [internist](#), social scientist and professor of medical sociology, medicine, and sociology at Harvard Medical School and the Harvard Faculty of Arts and Sciences, and James H. Fowler, a political scientist specializing in social [networks](#) and professor of political science at the University of California, San Diego, collaborated on a research project that analyzed "friends" to determine flu outbreaks (both seasonal and swine) at Harvard in 2009.

The study according to the May 14 [print](#) edition of *The Economist*, a global current events magazine, has been submitted to *Proceedings of the National Academy of Sciences* for publication. It is currently available for download via [arVix.org](#), a research online [database](#) linked to Cornell University Library.

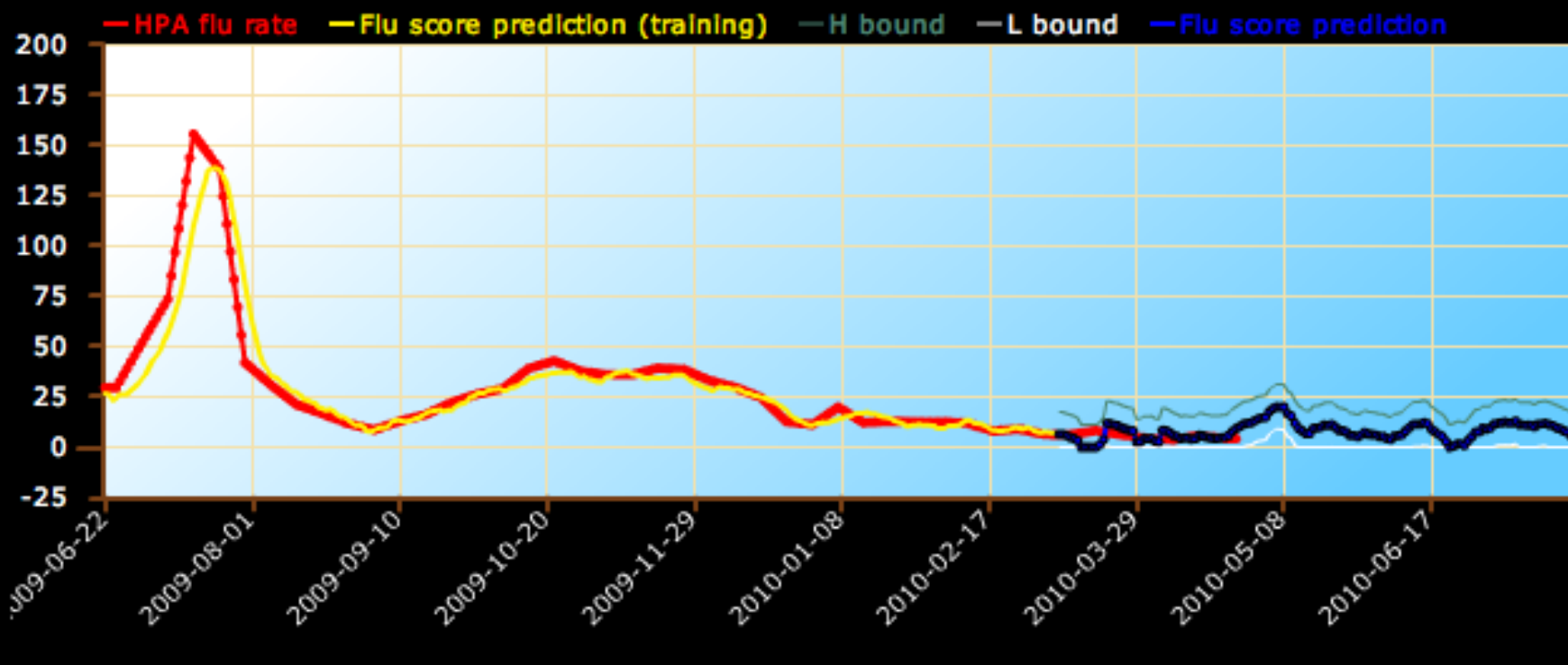
The researchers monitored 744 Harvard students by identifying random individuals and selecting their three most popular friends and



DIEGO CERVO

This plot shows a time series of our inferences for the flu-score in the region of England & Wales based on geolocated tweets. We compare them using the Mean Absolute Error (MAE) metric with official flu rates provided by the Health Protection Agency (HPA).

Twitter Flu-Score vs. HPA Flu Rate for England & Wales



n = ALL

A.I.

Follows rules in
problem solving.
Iterates. Learns.

Has the capacity to
address problems of
training, expertise,
fatigue, and cognitive
bias.

Watson



IBM Watson Finally Graduates Medical School

Partnership with Memorial Sloan-Kettering Cancer Center suggests IBM's supercomputer is ready to help oncologists manage their most challenging cases.

1

[Comment](#) | [Paul Cerrato](#) | October 23, 2012 09:07 AM

It's been more than a year since IBM's Watson computer appeared on *Jeopardy* and defeated several of the game show's top champions. Since then the supercomputer has been furiously "studying" the healthcare literature in the hope that it can beat a far more hideous enemy: the 400-plus biomolecular puzzles we collectively refer to as cancer.

A recent presentation by Martin Kohn, IBM's chief medical scientist, and [Pat Skarulis](#), CIO at New York's Memorial Sloan-Kettering Cancer Center, suggests Watson's up to the challenge.

During last week's [Digital Health Conference](#), sponsored by the New York eHealth Collaborative, Kohn and Skarulis outlined an impressive initiative their two organizations have embarked upon to use Watson "in the trenches" to treat oncology patients at Sloan-Kettering. Kohn outlined some of the basics of the project.

He was quick to point out that the supercomputer isn't just a "search engine on steroids," or even a massive database. It relies on parallel probabilistic algorithms to analyze millions of pages of unstructured text in patient records and the medical literature to locate the most relevant answers to diagnostic and treatment-related questions.



IW 500: 10 Healthcare IT Innovators

(click image for larger view and for slideshow)

It relies on parallel probabilistic algorithms to analyze millions of pages of unstructured text in **patient records** and the **medical literature** to locate the most relevant answers to diagnostic and treatment-related questions.

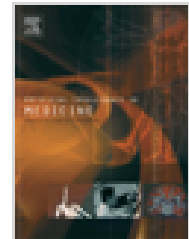
90% of the world's data has been created in the last two years, and 80% of that data is **unstructured.**

Watson is capable of
reading **65 million**
pages of text per
second



Artificial Intelligence in Medicine

Volume 53, Issue 2, October 2011, Pages 73–81



A Markov decision process approach to multi-category patient scheduling in a diagnostic facility

Yasin Gocgun^a, , , , Brian W. Bresnahan^b, Archis Ghate^c, Martin L. Gunn^b



Artificial Intelligence in Medicine

Volume 53, Issue 2, October 2011, Pages 127–138



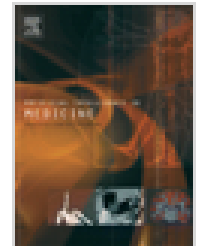
Non-invasive estimate of blood glucose and blood pressure from a photoplethysmograph by means of machine learning techniques

Enric Monte-Moreno  

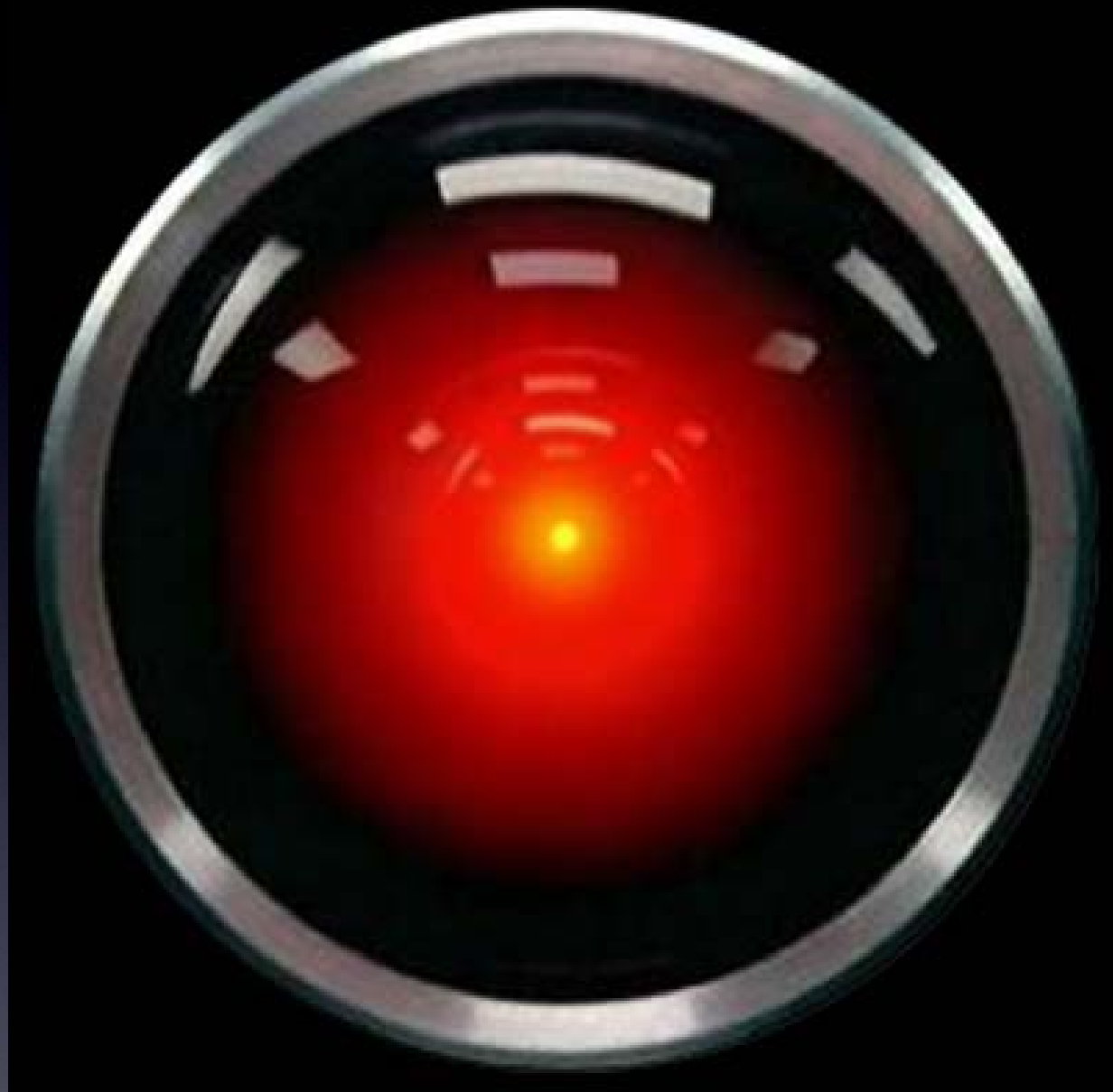


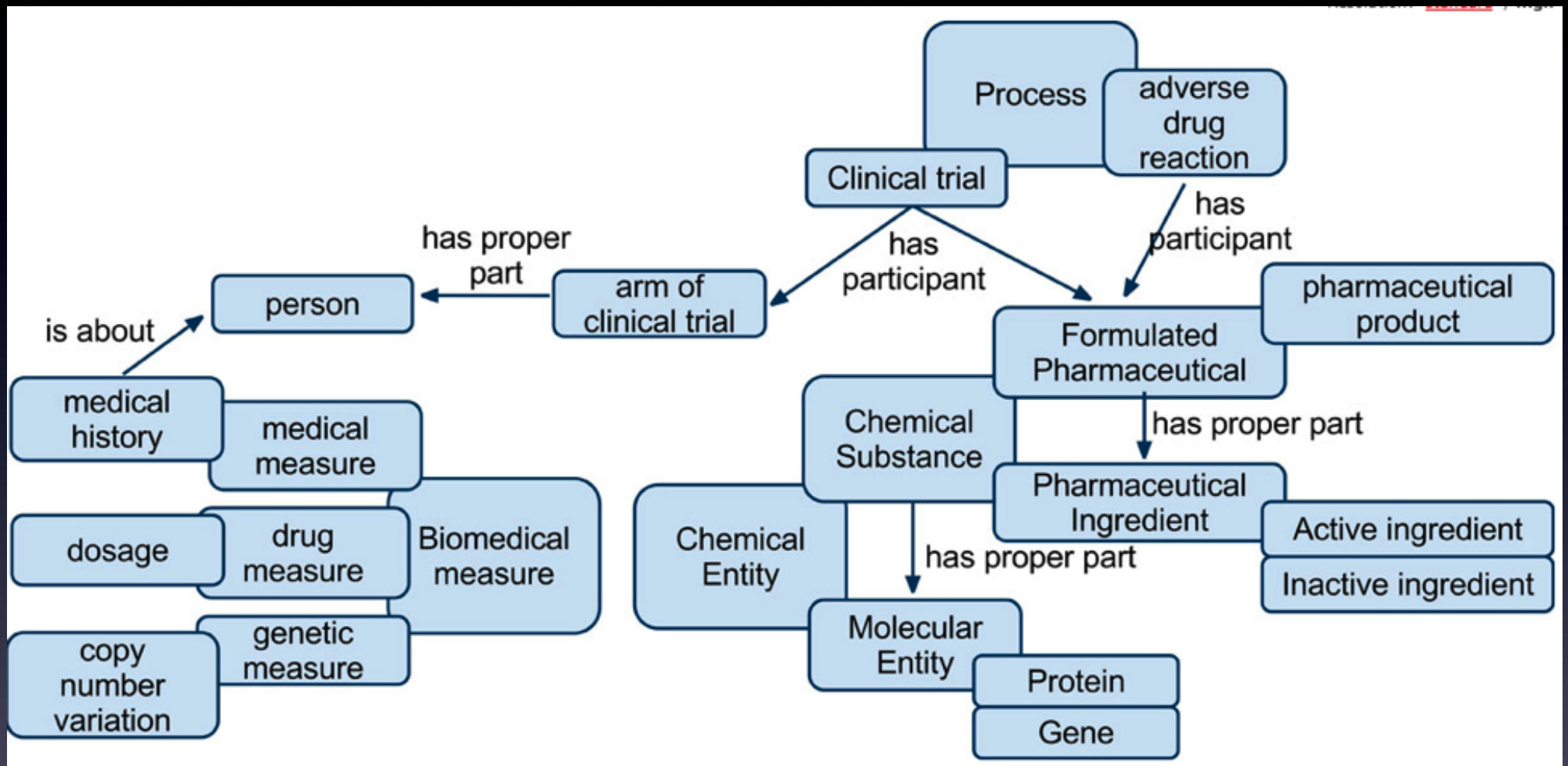
Artificial Intelligence in Medicine

Volume 53, Issue 2, October 2011, Pages 119–125



Classification of cancer cell death with spectral dimensionality reduction and generalized eigenvalues





n = ALL

MOBILE

Your Money & Life



Half of doctors to use medical apps in 2012

By: [Chris Gullo](#) | Nov 16, 2011

 Tweet 445

 Share 332

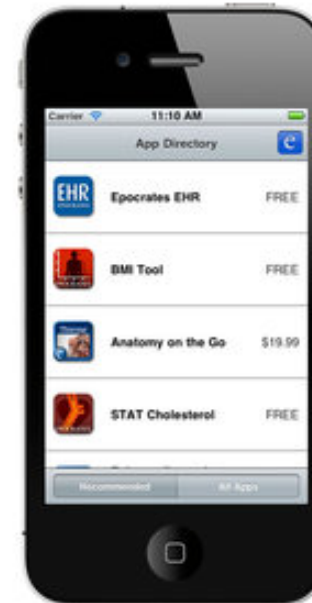
 Share 144

Tags: [CompTIA](#) | [medical apps adoption](#) | [mHealth metrics](#) | [physician smartphone adoption](#) | [wireless health metrics](#) |

More than 50 percent of physicians use a smartphone for work purposes, according to a new study by IT industry association CompTIA. CompTIA's "Third Annual Healthcare IT Insights and Opportunities" study consisted of online surveys of 350 doctors, dentists and other healthcare providers or administrators, along with executives at 400 IT firms that work in healthcare IT. The association conducted the surveys over the summer.

Noteworthy metrics from the surveys include:

- 25 percent of healthcare providers surveyed use tablets at their practice, while another 21 percent expect to do so in the next twelve months.
- 38 percent of physicians with smartphones use medical apps apps on a daily basis, with that number increasing to 50 percent in the next twelve months.
- Two-thirds said implementing or improving their use of mobile technologies is a high or mid-level priority in the next 12 months.
- Almost one-third of providers use their smartphones or tablets to access EMR/EHR systems, with 20 percent expecting to start within the next year.
- Some 38 percent of healthcare providers said they have a comprehensive EMR system in place and 17 percent have a partial system or module.
- Only 14 percent of healthcare professionals actively follow news and trends in telemedicine, while 37 percent expressed little interest in the topic.
- Telemedicine offers the greatest benefits for continuing medical education (61 percent), specialist referral services (44 percent) and patient consultations (37 percent).
- Ten percent intend to use video conferencing with patients in the next twelve months.



Unregulated health apps used as “standby stethoscopes”

By: [Brian Dolan](#) | Sep 27, 2012

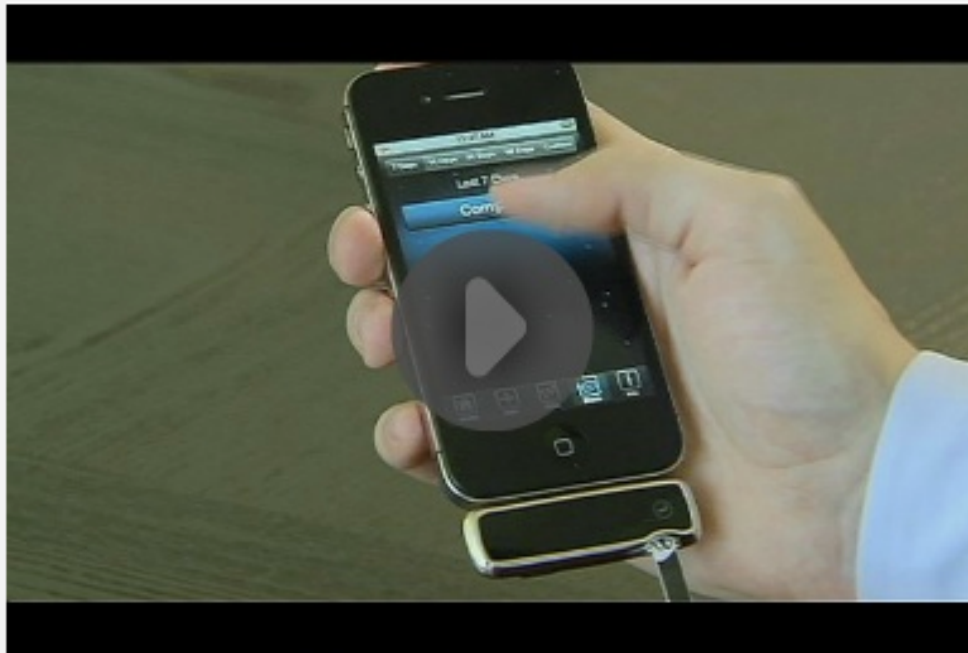
 [Tweet](#) 44

 [Share](#) 24

 [Share](#) 6

Tags: [Azumio](#) | [Instant Heart Rate](#) | [iPhone medical apps](#) | [pulse oximeters](#) | [pulse oximetry](#) | [smartphone health apps](#) | [SVT](#) |

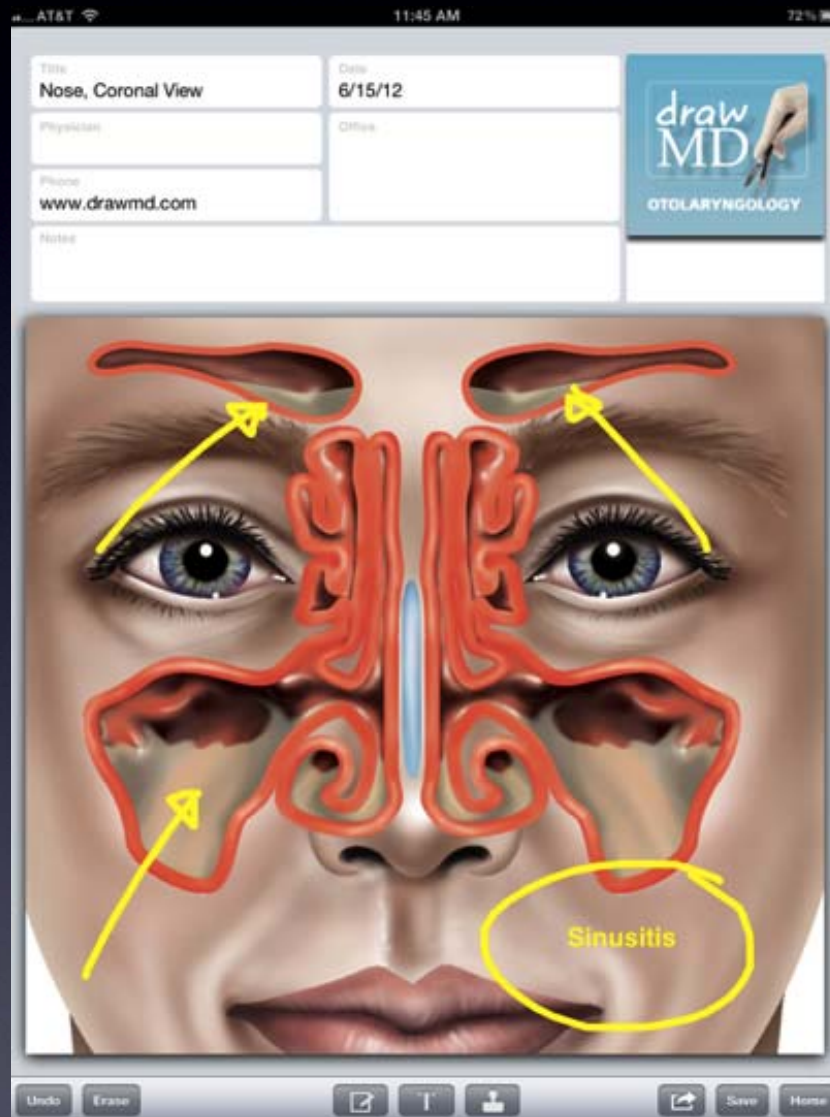
In July a television company that produces news segments and feeds them to local network news stations across the country came to interview me at MobiHealthNews headquarters in Cambridge, MA. They asked me to demo a few medical devices and companion apps, including a connected blood pressure cuff, a WiFi-enabled weight scale, a skin scan application and a variety of other ones that didn't make the final cut. I was only involved in the interview on-site, but they had mentioned plans to find at least one person (other than me) in the area that used these apps in their daily life.



00:00/00:00

Click to watch the segment from CBS Boston

Draw MD



Access RN's



Healthcare Cloud



Medical Misdiagnosis

The screenshot shows a mobile application interface with a light blue background. At the top, the status bar displays 'AT&T', signal strength, Wi-Fi, the time '3:12 PM', and battery level. Below the status bar is a blue header with the text 'Enter clinical features'. The form contains several input fields: 'age' with a dropdown menu set to 'adolescent (13-16yrs)', 'gender' with radio buttons for 'female' and 'male' (the 'male' button is selected), and 'travel history' with a dropdown menu set to 'America, North'. Below these are two text input fields, both containing the text 'NO negatives, NO numbers'. A blue button with a plus sign and the text 'add a clinical feature' is located below the text fields. At the bottom of the form are two buttons: 'Clear search' and 'Get checklist'. The bottom of the screen features a dark navigation bar with five icons: a heart rate line for 'Diagnose', a share icon for 'Share', a question mark for 'Help', a gear for 'Settings', and three dots for 'More'.

AT&T 3:12 PM

Enter clinical features

age adolescent (13-16yrs) ▼

gender female male

travel history America, North ▼

Recurring fever ×

Persistent joint pain ×

NO negatives, NO numbers

NO negatives, NO numbers

+ add a clinical feature

Clear search Get checklist

Diagnose Share Help Settings More

Track Vaccines



Mayo Clinic App

iPad 5:36 PM 76%

Ann Testing
Your next scheduled appointment:
Friday February 10, 2012 - 7:20 AM
Hilton Building, Court Level (Subway), Desk C

MAYO CLINIC



Our Locations **Mayo Clinic Information** **My Visit**

Mayo Clinic Information
Mayo Clinic - Information - Patient Services - Plan Your Visit...

Rochester, MN
Mayo Clinic  **33°F** Fair
H: 35°
L: 14°
Current Conditions as of 4:52 PM

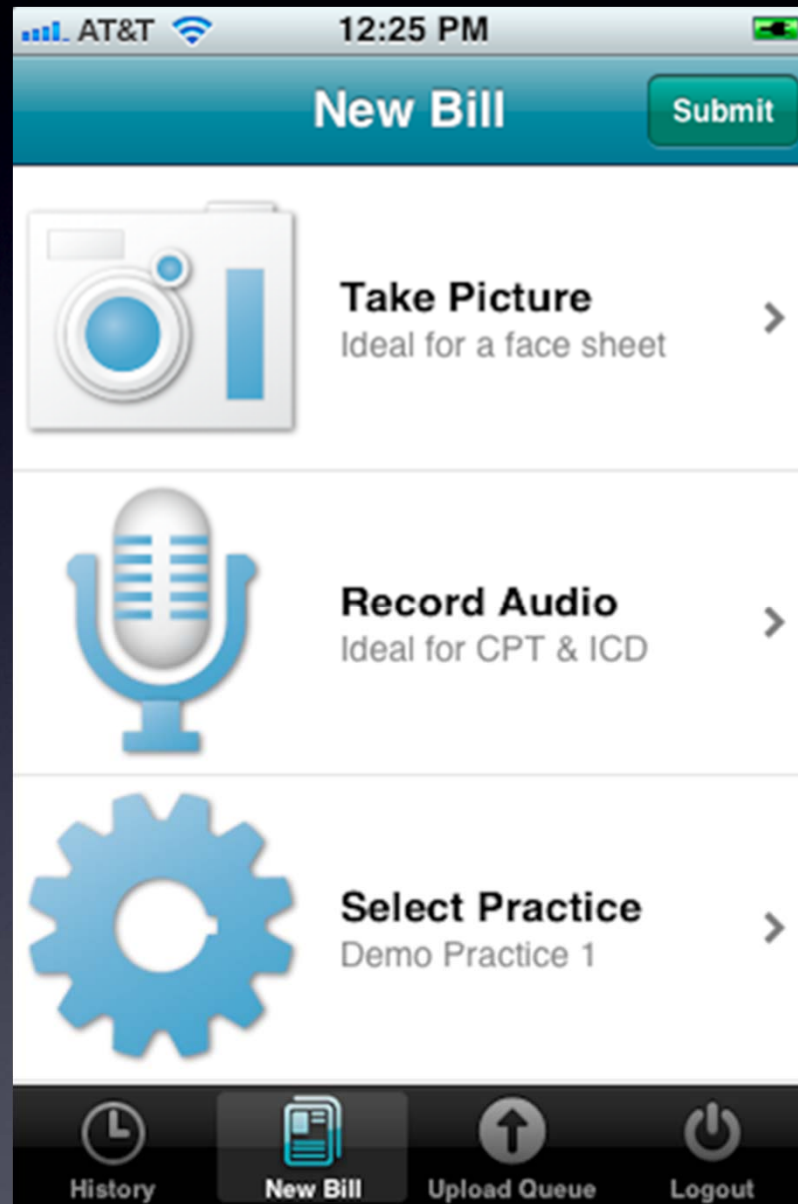
MedSpeak Translation



Asthma Management



Submit Billing Codes

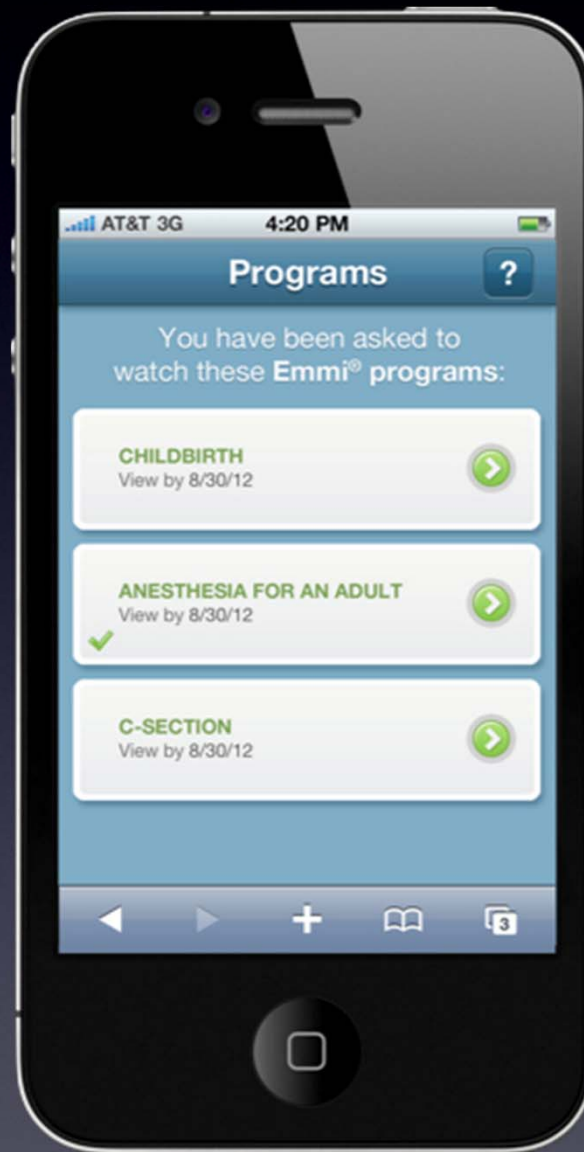


Healthcare Shopping

The screenshot shows a mobile application interface for healthcare shopping. At the top, there is a blue header bar with three buttons: 'Back' (left-pointing arrow), 'Compare' (center), and 'Filter' (right-pointing arrow). Below the header, a light blue banner displays 'YOU PAY: \$15-\$63'. The main content area lists four doctor profiles, each with a white background and a thin border. Each profile includes the doctor's name and credentials, their specialty, location and distance, a star rating, and the amount 'YOU PAY:'. The profiles are: 1. Jones, Patrick J., MD (5 stars, Palo Alto, 25 miles, \$30); 2. Rooney, Kevin A., MD (4 stars, Lafayette, 18 miles, \$15); 3. Courville, Ronald C., MD (5 stars, Fremont, 12 miles, \$45); 4. Dobbs, Jay P., MBBS, MD (4 stars, San Jose, 24 miles, \$63). Each entry has a right-pointing arrow next to the specialty text.

Doctor Name	Specialty	Location (Distance)	Rating	YOU PAY
Jones, Patrick J., MD	Cardiology, Cardiology - Cardiovascular...	Palo Alto (25 miles)	5 stars	\$30
Rooney, Kevin A., MD	Cardiology, Cardiology - Cardiovascular...	Lafayette (18 miles)	4 stars	\$15
Courville, Ronald C., MD	Cardiology, Cardiology - Cardiovascular...	Fremont (12 miles)	5 stars	\$45
Dobbs, Jay P., MBBS, MD	Cardiology, Cardiology - Cardiovascular...	San Jose (24 miles)	4 stars	\$63

Patient Interaction



Home > Shop > Personal Care > Home Tests & Monitoring > Blood Pressure Monitors

iHealth Lab Inc Blood Pressure Monitor Dock for iPod touch iPhone and iPad



 VIEW LARGER



\$99.99

 Ships for FREE [Details](#)

 **FSA**

Overview:

Size/Count 1.0 ea

- First, ever blood pressure monitoring system
- Visualize your testing process in motion
- Track your systolic and diastolic pressures, heart rate and more [more](#)



[Read all 2 reviews](#) | [Write a review](#)


 **Tweet**  **Like**  0  **Send**



Quantity:

[ADD TO SHOPPING LIST](#)

[ADD TO CART](#)

Availability

 Online [See when this item arrives](#)

 In Store  [Find at your local Walgreens](#)

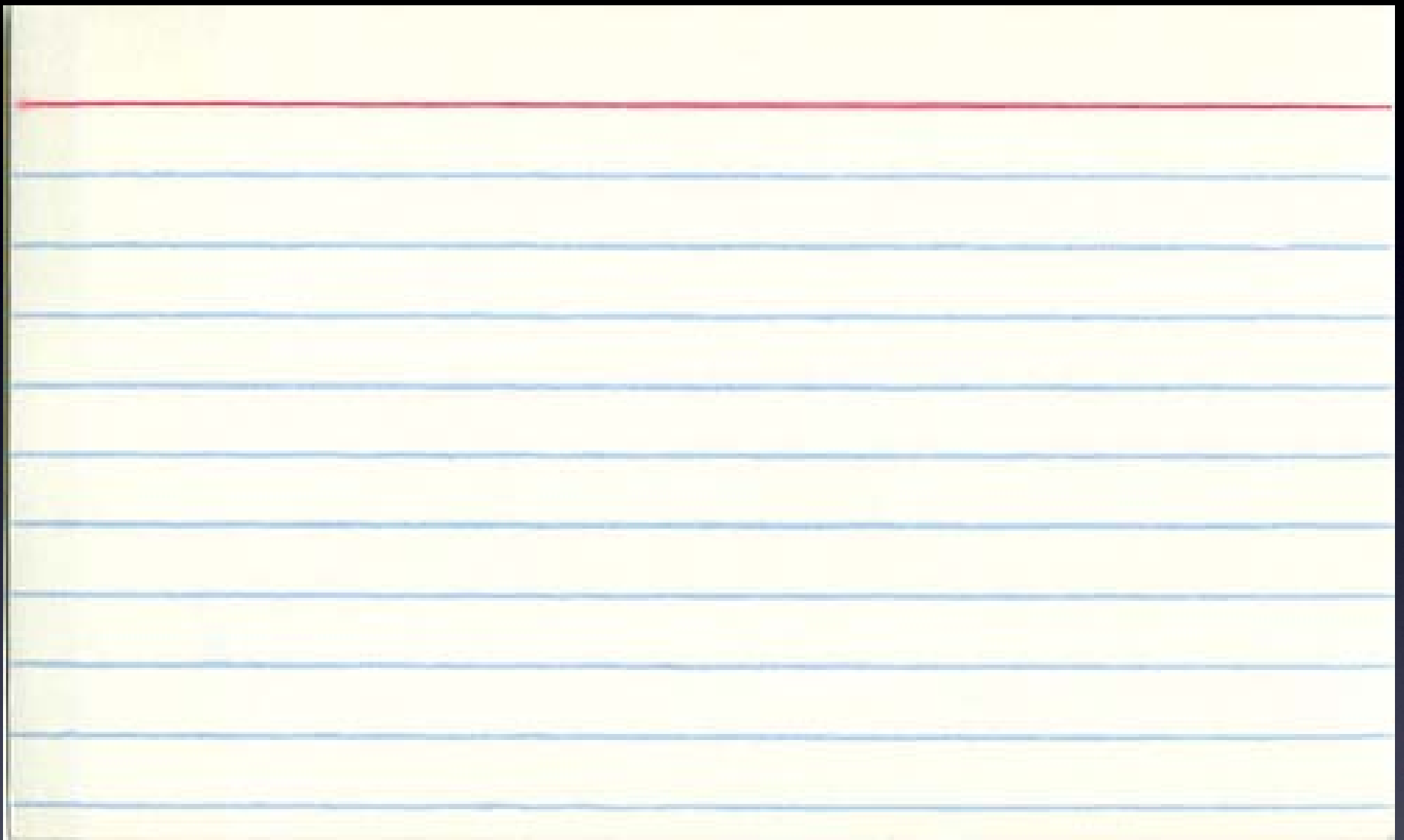
Price may vary by location and may not match online pricing.





n = ALL

EHRs



EHR's are expensive
and a pain in the butt

Why EMR's Are Really Important



Scheduling System

Billing System

Patient Records System

They can be a force
for good

Meaningful Use

PRIVACY

RON GALLOWAY

NAVIGATION

Main

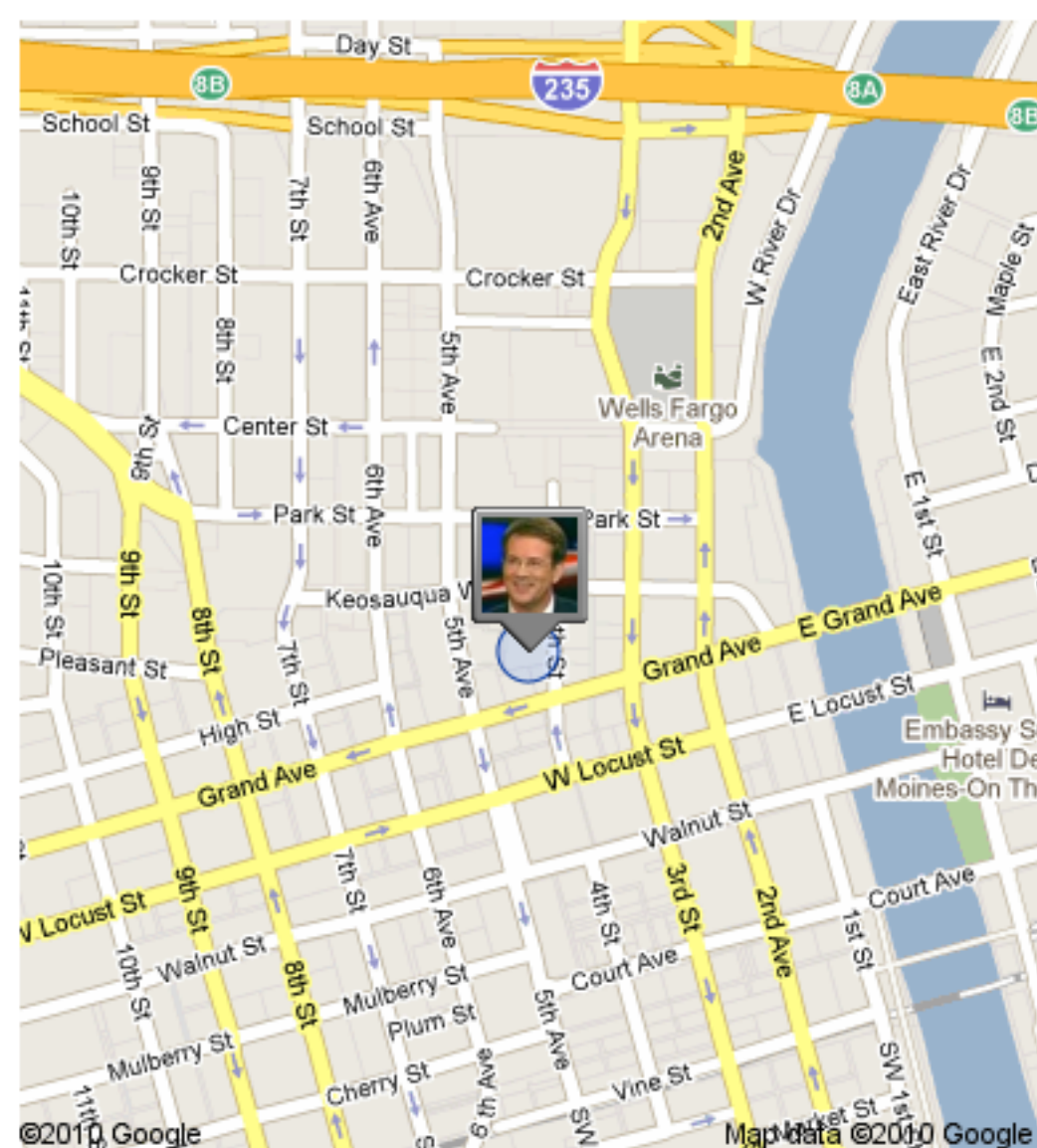
☰ Speaking

Rethinking PowerPoint

Rebooting Healthcare

Login

WTFIR



Des Moines, IA, USA 16 hours ago



google.com/latitude

An EMR will usually contain a name, address, Social Security Number, date of birth, prescription information, medical history, and possibly a picture of a driver's license.

Patients with recent birth or death events would be perfect candidates for **identity theft** as no one is usually monitoring their credit.

8 Million Patient Records Stolen From Virginia State Database, Held For Ransom

By [Chris Walters](#) on May 5, 2009 8:48 PM

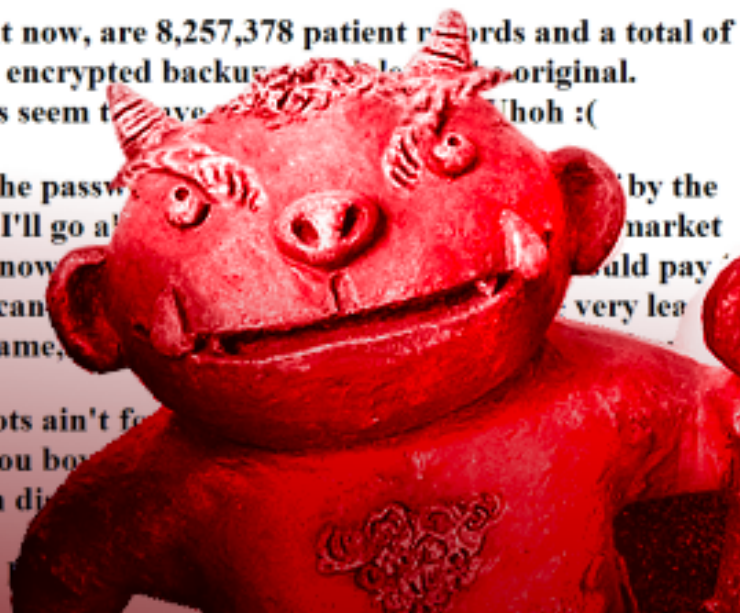
ATTENTION VIRGINIA

I have your shit! In *my* possession, right now, are 8,257,378 patient records and a total of 35,548,087 prescriptions. Also, I made an encrypted backup of the original. Unfortunately for Virginia, their backups seem to have been deleted. Whoh :(

For \$10 million, I will gladly send along the password. If by the end of 7 days, you decide not to pony up, I'll go all market and accept the highest bid. Now I don't know how much you should pay for it, but I'm bettin' someone will. Hell, if I can't find a buyer for the personal data (name, address, etc.), I'll be very lea

Now I hear tell the Fucking Bunch of Idiots ain't for be turned right the fuck around. When you boys want to talk, hackingforprofit@yahoo.com and we can discuss it.

Until then, have a wonderful day, I know you will.



ATTENTION VIRGINIA

I have your shit! In *my* possession, right now, are 8,257,378 patient records and a total of

—>The Washington Post says that a hacker encrypted 8 million patient prescription records from a Virginia state website last week, deleted the backups, and replaced the home page with a ransom note. If the state doesn't pay \$10 million within 7 days, the hacker has threatened to sell the data to the highest bidder.

Identity Theft Check Up: Electronic Medical Records are the New Credit Cards



Like



Be the first of your friends to like this.

As credit card fraud prevention measures have made it tougher on identity thieves, identity thieves have found a new target, healthcare identities. And healthcare information systems are nowhere near ready to withstand the onslaught. A recent survey by Chicago-based HIMSS (Healthcare Information and Management Systems Society) found that most hospitals spend less than 3% of their IT budget on security, a level Lisa Gallagher, senior director for privacy and security at HIMSS, calls inadequate.



Extortionists Target Major Pharmacy Processor

One of the nation's largest processors of pharmacy prescriptions said Thursday that extortionists are threatening to disclose personal and medical information on millions of Americans if the company fails to meet payment demands.

St. Louis-based **Express Scripts** said that in early October it received a letter that included the names, birth dates, Social Security numbers and in some cases prescription data on 75 of its customers. The authors threatened to expose millions of consumer records if the company declined to pay up, Express Scripts said in [a statement](#).

Social Security
numbers sell for \$6

EMR's sell for \$50

Can be used to submit
fraudulent insurance
claims

She recalled the case of one woman whose stolen, and altered, medical records indicated she asked for prescription pain killers at a hospital emergency room, when, in fact, she didn't. "Her files now reflect that behavior, even though she had nothing to do with it," said Dixon.

Private medical records for sale: Harley Street clinic patients' files outsourced for computer input - and end up on black market

By JO MACFARLANE

Last updated at 8:13 AM on 18th October 2009

 [Comments \(28\)](#) |  [Add to My Stories](#)

The confidential medical records of patients treated at one of Britain's top private hospitals have been illegally sold to undercover investigators.

Hundreds of files containing intimate details of patients' conditions, home addresses and dates of birth are being offered for as little as £4 each.

The files were sold by two men who claimed to have gained access to the information from IT companies in India, where thousands of British medical records are sent every year to be computerised.

Senator, kin 'disturbed' by health records search

By Hillary Chabot | Friday, April 1, 2011 | <http://www.bostonherald.com> | Local Politics

Sen. Brown, Reggie Love shoot hoops for...

CBSNEWS

CBS Added Apr. 1, 2011



n = ALL

Why EMR's Are Really Important

GENOMICS

THE TIMES

THE SUNDAY TIMES

Archive Article

Please enjoy this article from The Times & The Sunday Times archives. For f

From [The Sunday Times](#)

June 13, 2010

Genetics to solve why Ozzy Osbourne is still alive

[Jack Grimston](#)

THE mystery of why Ozzy Osbourne is still alive after decades of drug and alcohol abuse may finally be solved.

The 61-year-old former Black Sabbath lead singer — who this week begins his health advice column in *The Sunday Times Magazine* — is to become one of only a few people in the world to have his full genome sequenced.

[EXPLORE HEALTH NEWS](#)

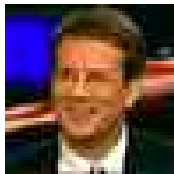
[▶ SWINE FLU](#)



The Human Genome Project

National
Human
Genome
Research
Institute, NIH

Organism	Classification	Genome Size [‡]	Estimated No. of Protein-Coding Genes [†]
Human (<i>Homo sapiens</i>)	Placental mammal	3.2 Gb	19,042
Chimpanzee (<i>Pan troglodytes</i>)	Placental mammal	2.7 Gb	19,000
Mouse (<i>Mus musculus</i>)	Placental mammal	2.6 Gb	20,210
Dog (<i>Canis familiaris</i>)	Placental mammal	2.4 Gb	19,300
Platypus (<i>Ornithorhynchus anatinus</i>)	Monotreme	2.2 Gb	18,527
Rice (<i>Oryza sativa</i>)	Plant	389 Mb	37,544
Mosquito (<i>Anopheles gambiae</i>)	Insect	278 Mb	15,189
<i>Plasmodium falciparum</i> (organism causing malaria)	Protozoa	22.8 Mb	5,300
Yeast (<i>Saccharomyces cerevisiae</i>)	Fungus	12.1 Mb	6,607
<i>Escherichia coli</i>	Bacterium	4.6 Mb	3,200
Human immunodeficiency virus	Retrovirus	9.1 Kb	9



rongalloway Ron Galloway

Genome size of humans is about 3.2 gigabytes. File size of "The Hangover" DVD is about 4 gigabytes.

[#isanotherplanetavailableplease](#)

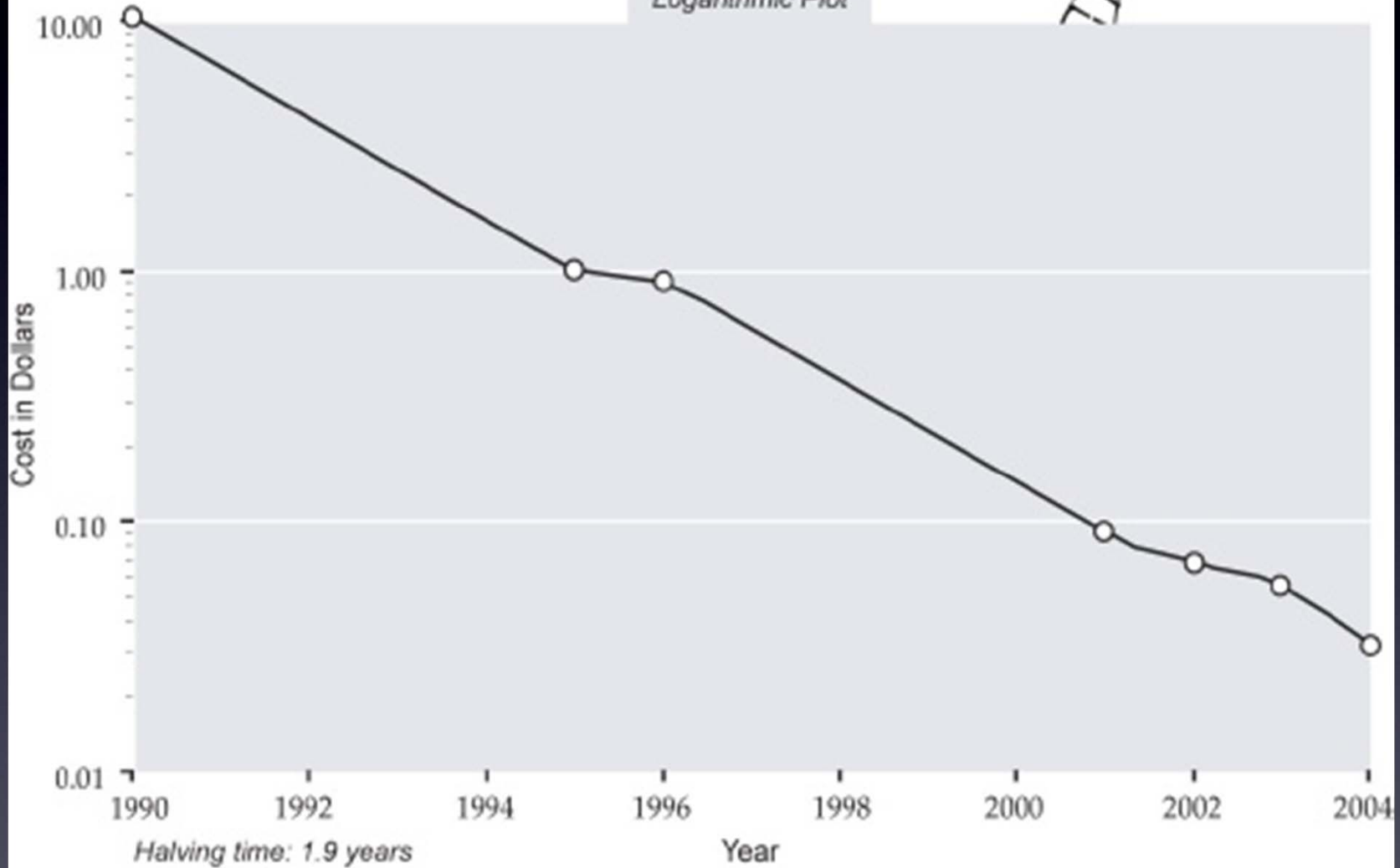
2 Jun

Increased Computing Power

DNA Sequencing Cost

(per finished base pair)

Logarithmic Plot



Exponential Growth Of Medical Knowledge

2003 - \$15,000,000

Today - \$1,000

GENOMICS



23andMe genetics just got personal.

welcome

how it works

genetics 101

st

See your genes in a whole new light.

TIME Magazine's 2008 Invention of the Year, now \$399.



How it works

Buy US \$399

Try a demo



welcome to you.



Your **Health results** are ready.

Use the navigation on the left to view your **Disease Risk**, **Carrier Status**, **Drug Response** and **Traits**.

1 day ago



Your **Ancestry analysis** is complete.

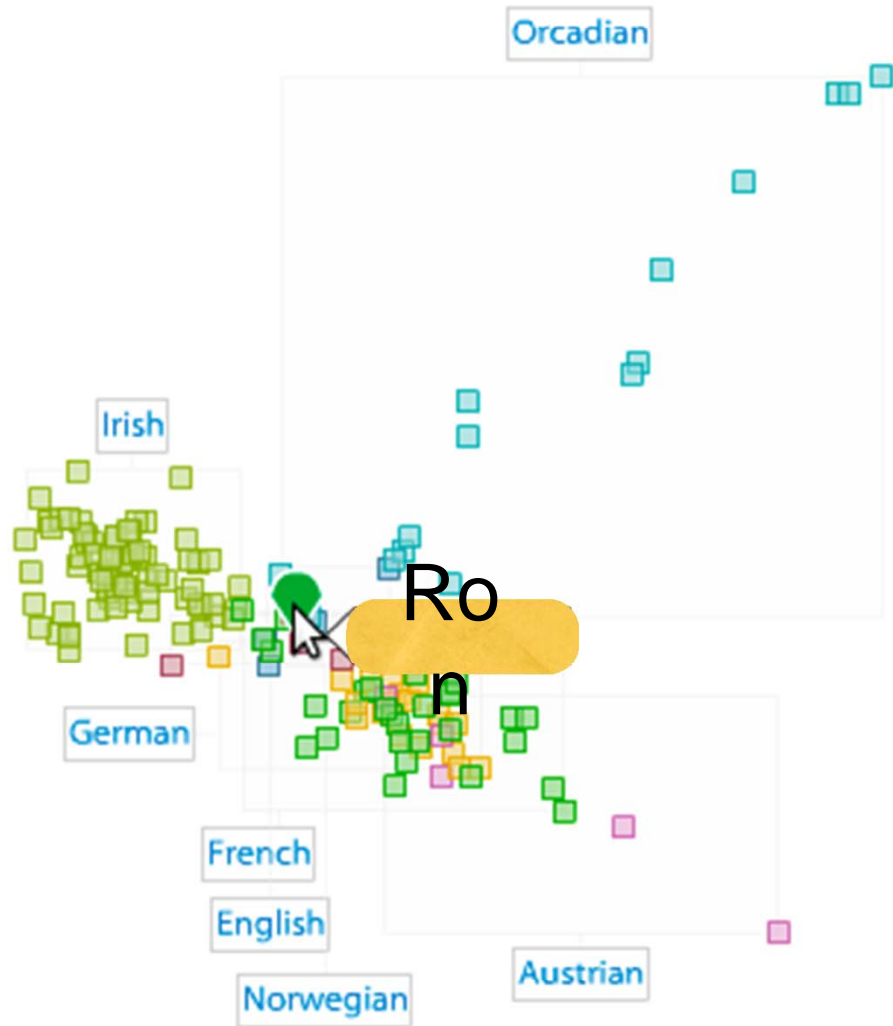
Use the navigation on the left to:

- Explore your **maternal** and **paternal** lineage.
- See how **genetically similar** you are to groups of people from around the world.
- **Find other 23andMe members who match your DNA.**
- **Trace the ancestry of your chromosomes** one segment at a time.

1 day ago

 Zoom out

↑ south / north migrations
↓




← west / east migrations →







Disease Risk

Show results for Ronald Galloway

[See new and recently updated reports »](#)

 23andMe Discoveries were made possible by 23andMe members who took surveys.

Elevated Risk

Name	Confidence	Your Risk	Avg. Risk	Compared to Average
Prostate Cancer 	★★★★★	24.1%	17.8%	1.35x higher risk 
Colorectal Cancer	★★★★★	7.9%	6.1%	1.29x higher risk 
Melanoma	★★★★★	4.0%	2.9%	1.38x higher risk 
Restless Legs Syndrome	★★★★★	2.5%	2.0%	1.25x higher risk 
Ulcerative Colitis	★★★★★	1.3%	0.8%	1.73x higher risk 


Decreased Risk ?

Name	Confidence	Your Risk	Avg. Risk	Compared to Average
Type 2 Diabetes	★★★★★	18.9%	23.7%	0.80x lower risk
Psoriasis	★★★★★	7.1%	11.4%	0.62x lower risk
Age-related Macular Degeneration	★★★★★	4.3%	7.0%	0.61x lower risk
Rheumatoid Arthritis	★★★★★	1.1%	2.4%	0.47x lower risk
Type 1 Diabetes	★★★★★	0.7%	1.0%	0.65x lower risk




Drug Sensitivity

Show results for

[See new and recently updated reports »](#)

 23andMe Discoveries were made possible by 23andMe members who took surveys.

Name	Confidence ▼	Status
Response to Hepatitis C Treatment	★★★★★	Reduced
Warfarin (Coumadin®) Sensitivity	★★★★★	Increased
Abacavir Hypersensitivity	★★★★★	Typical
Alcohol Consumption, Smoking and Risk of Esophageal Cancer	★★★★★	Typical

Name	Confidence 	Outcome
Alcohol Flush Reaction	★★★★★	Does Not Flush
Bitter Taste Perception	★★★★★	Can Taste
Earwax Type	★★★★★	Wet
Eye Color	★★★★★	Likely Brown
Hair Curl 	★★★★★	Slightly Curlier Hair on Average
Lactose Intolerance	★★★★★	Likely Tolerant
Malaria Resistance (Duffy Antigen)	★★★★★	Possibly Resistant
Male Pattern Baldness 	★★★★★	Increased Odds
Muscle Performance	★★★★★	Likely Sprinter
Non-ABO Blood Groups	★★★★★	See Report
Norovirus Resistance	★★★★★	Resistant
Resistance to HIV/AIDS	★★★★★	Not Resistant
Smoking Behavior	★★★★★	Typical

Who	Genotype	What It Means
Ronald Galloway	AA	Fast caffeine metabolizer: drinking coffee didn't increase subjects' heart attack risk
	AC	Slow caffeine metabolizer: drinking coffee increased subjects' heart attack risk.
	CC	Slow caffeine metabolizer: drinking coffee increased subjects' heart attack risk.

Who	Genotype	What It Means
	AA	Decreasing energy intake and increasing physical activity was associated with weight loss
	AG	Decreasing energy intake and increasing physical activity was not associated with weight loss
Ronald Galloway	GG	Decreasing energy intake and increasing physical activity was not associated with weight loss

Latest updates

Name	Confidence	Your Result	Last Updated ▾
Bladder Cancer update	★★★	Decreased Risk	Oct 14, 2010
Schizophrenia update	★★★	Decreased Risk	Oct 14, 2010
Ankylosing Spondylitis update	★★★	Decreased Risk	Oct 7, 2010
Keloid new	★★★	Increased Risk	Sep 30, 2010
Refractive Error new	★★★	See Report	Sep 30, 2010
Esophageal Squamous Cell Carcinoma (ESCC) new	★★★★★	Increased Risk	Sep 23, 2010
Selective IgA Deficiency new	★★★	Increased Risk	Sep 23, 2010
Stomach Cancer (Gastric Cardia Adenocarcinoma) new	★★★★★	Increased Risk	Sep 23, 2010
Behçet's Disease new	★★★	Decreased Risk	Sep 16, 2010
Lumiracoxib (Prexige®) Side Effects new	★★	Typical Odds	Sep 9, 2010
Nasopharyngeal Carcinoma new	★★★	Increased Risk	Sep 2, 2010

Controversy Over DTC

What We Know

Purchasers of DTC
data **do not act rashly**
based on what they
learn

Reasons for Buying DTC

Curiosity

Desire to learn about
disease in family

Desire to learn about
genetics **without**
having to go through a
physician

Oncologists seeing
increase in requests
for genetic tests



🔑 **New Studies Signal Major Shift in Cancer War**

New research is signaling a major shift in how cancer drugs are developed and patients are treated—offering the promise of personalized therapies that reach patients faster and are more effective than other medicines.

Integrating Large-Scale Genomic Information into Clinical Practice

July 19, 2011

The Keck Center of the National Academies
500 Fifth St., N.W.
Washington, DC 20001

Workshop Objective:

- To highlight and identify the challenges and opportunities in integrating large-scale genomic information into clinical practice.

Workshop Assumptions:

- Sequencing technology will advance enough to produce clinically meaningful results.
 - Whole genome sequencing (WGS) will be cost-effective and comparable to other diagnostic tests.
-

Cancer's New Era Of Promise And Chaos

Jun. 5 2011 - 11:38 am | 8,665 views | 2 recommendations | 2 comments

In a major speech to cancer doctors Saturday, the outgoing president of the American Society of Clinical Oncology told his colleagues to prepare for a new era in which rapidly advancing genetic technology will change the way cancer is treated for the better – but also force doctors to change the way they invent and test drugs and care for patients.

This bold declaration came as

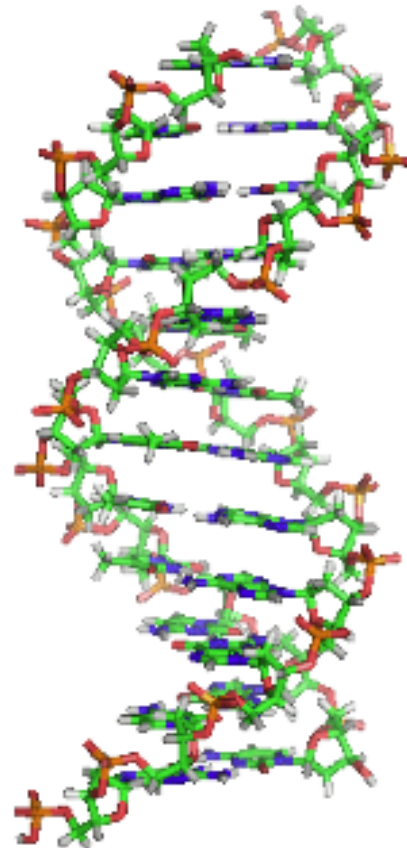


Image via Wikipedia



IyaKhalil

19 hours

@WSJHealth SO many talks I went to echoed similar message: TIME IS NOW for entire genomic seq. of tumors & personalized #cancer med. #ASCO11

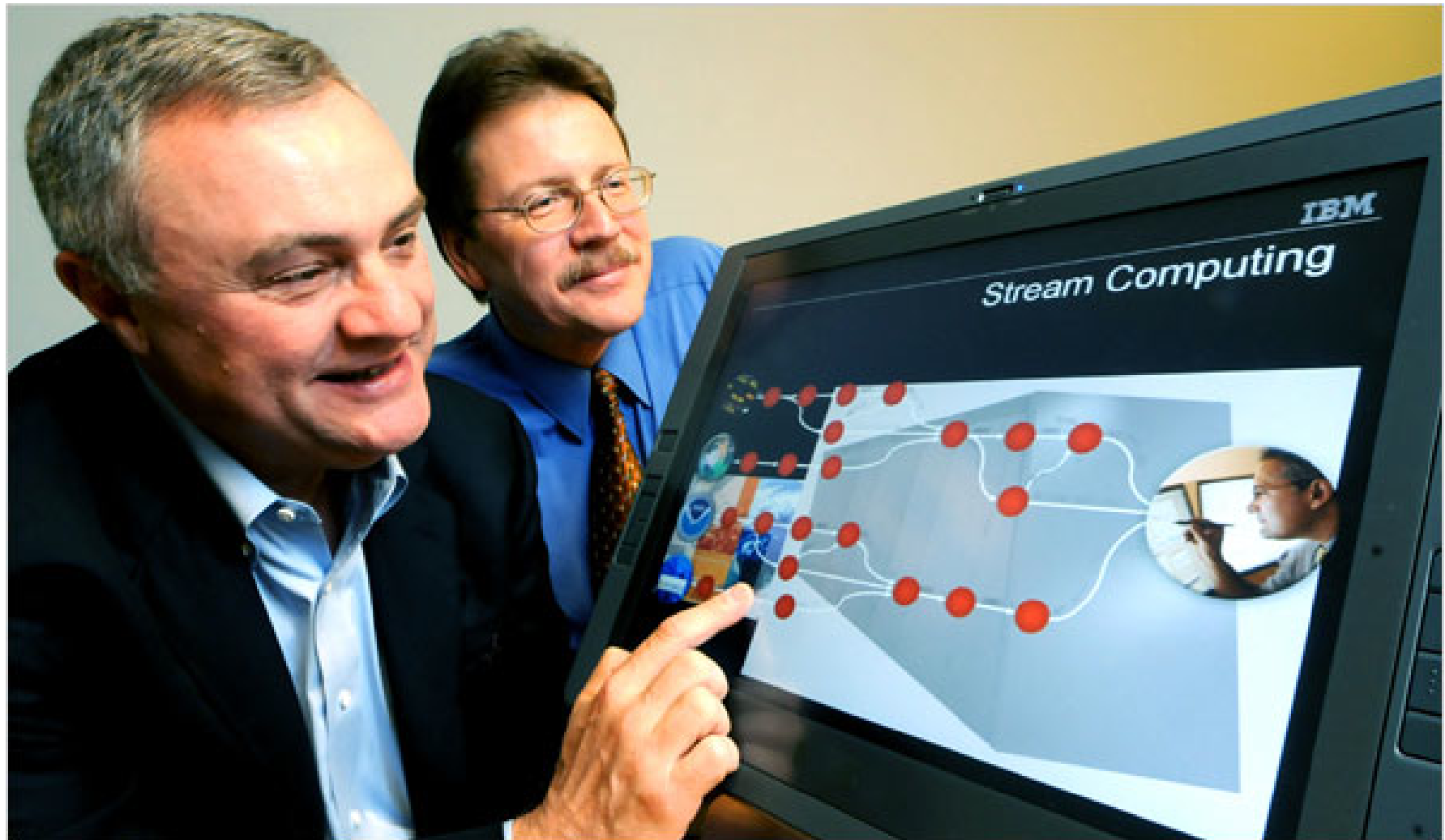


IyaKhalil

6 hours

Another theme echoed by many oncologists - It is unethical NOT to do whole #genome sequencing on patient #tumors before treatment. #ASCO11

I.B.M. Unveils Real-Time Software to Find Trends in Vast Data Sets



I.B.M.

Steve Mills, left, and Dr. John Kelly of I.B.M. Research view new software that makes it possible to gather and analyze vast amounts of information at a record pace.

Predicting Drug Side Effects



SEA search tool (SEArch)

This is the online search tool for the [Similarity Ensemble Approach](#), which relates proteins based on the chemical similarity of their ligands.

Query compound:

Each line should contain a compound's [SMILES](#) and a one-word identifier. To run the Similarity Ensemble Approach (SEA) on a single compound, enter this info on a single line. For instance, to run caffeine, you could enter:

```
Cn1cnc2c1c(=O)n(c(=O)n2C)C caffeine
```

Somatic Mutations and the Cost of Smoking

A comparison of tumor and normal sequences yielded some 83,000 predicted somatic SNVs. After **validating 70% of predicted coding region SNVs**, the authors re-tuned their prediction algorithms (to 90% specificity and 82% sensitivity) and called 50,675 high-confidence somatic mutations genome-wide. The patient was a 51-year-old man who'd reported smoking 25 cigarettes a day for 15 years prior to surgery. What was the cost of his unhealthy habit? At \$3.50 a pack, it works out to around \$24,000. At 50,000 mutations, it works out to **one mutation for every 2.7 cigarettes**. Consider that, smokers, the next time you decide to light up.

The New York Times

Complete Genome Sequencing Offers Clues to Diseases

[More](#)

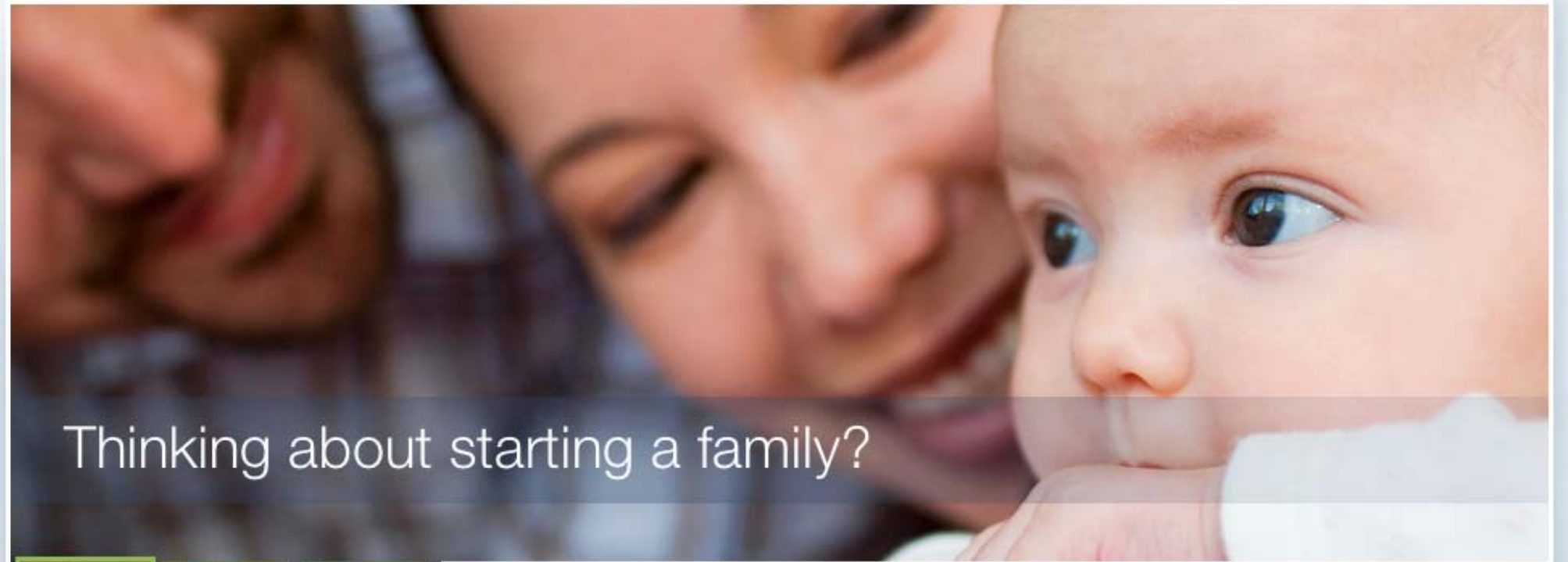
Accurate, Affordable,
Complete Human Genome Studies

Are Within Your Reach.

[View Data](#)



**Commercial-scale Genome
Center**



Thinking about starting a family?



“Every adult of reproductive age
needs the Counsyl test.”

Every test you take funds treatments and cures
for children living with genetic disease. [Learn More](#)

The First Child Saved By DNA Sequencing

Jan. 5 2011 - 4:57 pm | 19,350 views | 4 recommendations | 24 comments



Since he was a toddler, six-year-old Nicholas Volker's intestine had been dangerously inflamed, necessitating a hundred surgeries including the removal of his colon. No one knew the cause, but it seemed certain that the boy was dying. In a desperate attempt to figure out what was wrong, doctors at the Medical College of Wisconsin did something desperate and unproven: they sequenced his DNA.

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ORIGINAL ARTICLE

Variant *GADLI* and Response to Lithium Therapy in Bipolar I Disorder

Chien-Hsiun Chen, Ph.D., Chau-Shoun Lee, M.D., Ph.D., Ming-Ta Michael Lee, Ph.D., Wen-Chen Ouyang, M.D., Ph.D., Chiao-Chicy Chen, M.D., Ph.D., Mian-Yoon Chong, M.D., Ph.D., Jer-Yuarn Wu, Ph.D., Happy Kuy-Lok Tan, M.D., Yi-Ching Lee, Ph.D., Liang-Jen Chuo, M.D., Nan-Ying Chiu, M.D., Hin-Yeung Tsang, M.D., Ph.D., Ta-Jen Chang, M.D., For-Wey Lung, M.D., Sc.D., Chen-Huan Chiu, M.D., Ph.D., Cheng-Ho Chang, M.D., M.Sc., Ying-Sheue Chen, M.D., Yuh-Ming Hou, M.D., Cheng-Chung Chen, M.D., Ph.D., Te-Jen Lai, M.D., Ph.D., Chun-Liang Tung, M.D., Chung-Ying Chen, M.D., Hsien-Yuan Lane, M.D., Ph.D., Tung-Ping Su, M.D., Jung Feng, M.D., Jin-Jia Lin, M.D., Ching-Jui Chang, M.D., Po-Ren Teng, M.D., Chia-Yih Liu, M.D., Chih-Ken Chen, M.D., Ph.D., I-Chao Liu, M.D., D.Sc., Jiahn-Jyh Chen, M.D., Ti Lu, M.D., Chun-Chieh Fan, M.D., Ching-Kuan Wu, M.D., Chang-Fang Li, B.S., Kathy Hsiao-Tsz Wang, M.Sc., Lawrence Shih-Hsin Wu, Ph.D., Hsin-Ling Peng, M.Sc., Chun-Ping Chang, M.Sc., Liang-Suei Lu, M.Sc., Yuan-Tsong Chen, M.D., Ph.D., and Andrew Tai-Ann Cheng, M.D., Ph.D., D.Sc. for the Taiwan Bipolar Consortium

N Engl J Med 2014; 370:119-128 | [January 9, 2014](#) | DOI: 10.1056/NEJMoa1212444

BACKGROUND

Lithium has been a first-line choice for maintenance treatment of bipolar disorders to prevent relapse of mania and depression, but **many patients do not have a response to lithium treatment.**

METHODS

Selected subgroups from a sample of 1761 patients of Han Chinese descent with bipolar I disorder who were recruited by the Taiwan Bipolar Consortium.

Assessed their response to lithium treatment using the Alda scale and performed a **genomewide association study** on samples from one subgroup of 294 patients with bipolar I disorder who were receiving lithium treatment.

CONCLUSIONS

Genetic variations in *GADL1* are associated with the response to lithium maintenance treatment for bipolar I disorder in patients of Han Chinese descent.

Gene Boosts Statin Risk

Joan Stephenson, PhD

JAMA. 2008;300(7):782. doi:10.1001/jama.300.7.782-a.

Text Size: **A** A A

Article

Scientists in England have identified a genetic variant that is strongly associated with an increased risk of myopathy related to statin use (The SEARCH Collaborative Group. *N Engl J Med*. 10.1056/NEJMoa0801936 [published online ahead of print July 23, 2008]).

The study focused on 85 persons with definite or incipient myopathy and 90 controls, all of whom were taking 80 mg of simvastatin daily as part of a trial involving about 12 000 participants. A particular variant of a gene called *SCLO1B1*, which encodes a protein that regulates the uptake of statins, was associated with more than 60% of cases of myopathy. Those with 1 copy of this variant, the C allele, were more than 4 times likelier to have myopathy compared with individuals who possess a more common variant of *SCLO1B1*, the T allele; those with 2 C alleles were about 17 times more likely to have myopathy. The findings were replicated in a second group of individuals receiving 40 mg of simvastatin daily, although the risk level was somewhat lower.

Future Of Medicine

Prevention vs.
In-Stage Treatment

n = ALL

AMBIENT
INTELLIGENC
E

AMBIENT INTELLIGENCE

Ambient Intelligence (Aml) is a new paradigm in information technology, in which people are empowered through a digital environment that is aware of their **presence and context**, and is sensitive, **adaptive, and responsive** to their needs, habits, gestures and emotions.

AMBIENT INTELLIGENC E

Intelligent computing where
environments
support the people inhabiting them





Apple's Indoor GPS

iBeacons

- Core Location monitors Bluetooth LE beacon signals
- Various hardware can be a beacon
 - Third-party Bluetooth LE emitters
 - iOS devices
- Advantages
 - Accuracy and range awareness
 - One beacon ID can cover multiple locations



Triangulate What Floor You are On

What exactly WiFiSLAM is, and why Apple
acquired it

By [Matthew Panzarino](#), Tuesday, 26 Mar '13, 02:20am



What Apple's M7 Motion-Sensing Chip Could Do

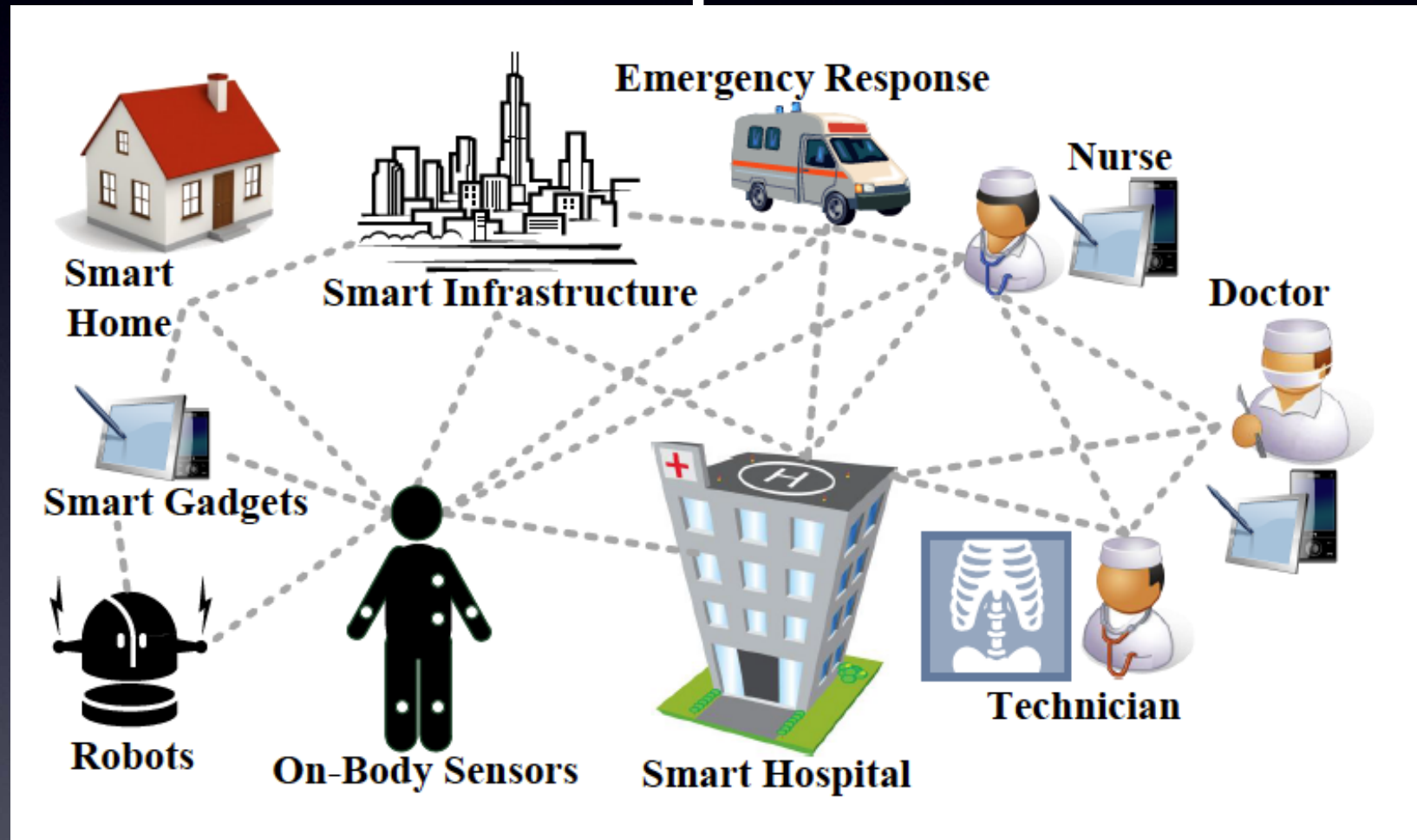
Apple's always-on motion-sensing M7 chip points the way to an era of mobile gesture-recognition and "ambient intelligence."

By David Talbot on September 25, 2013

The motion-processing M7 chip in the new [iPhone 5S](#) will serve as an aid to fitness-tracking apps, says Apple. But over the long term, the chip could help advance gesture-recognition apps and sophisticated ways for your smartphone to anticipate your needs, or even your mental state, researchers say.

Download the
MIT Techno
Making Mo

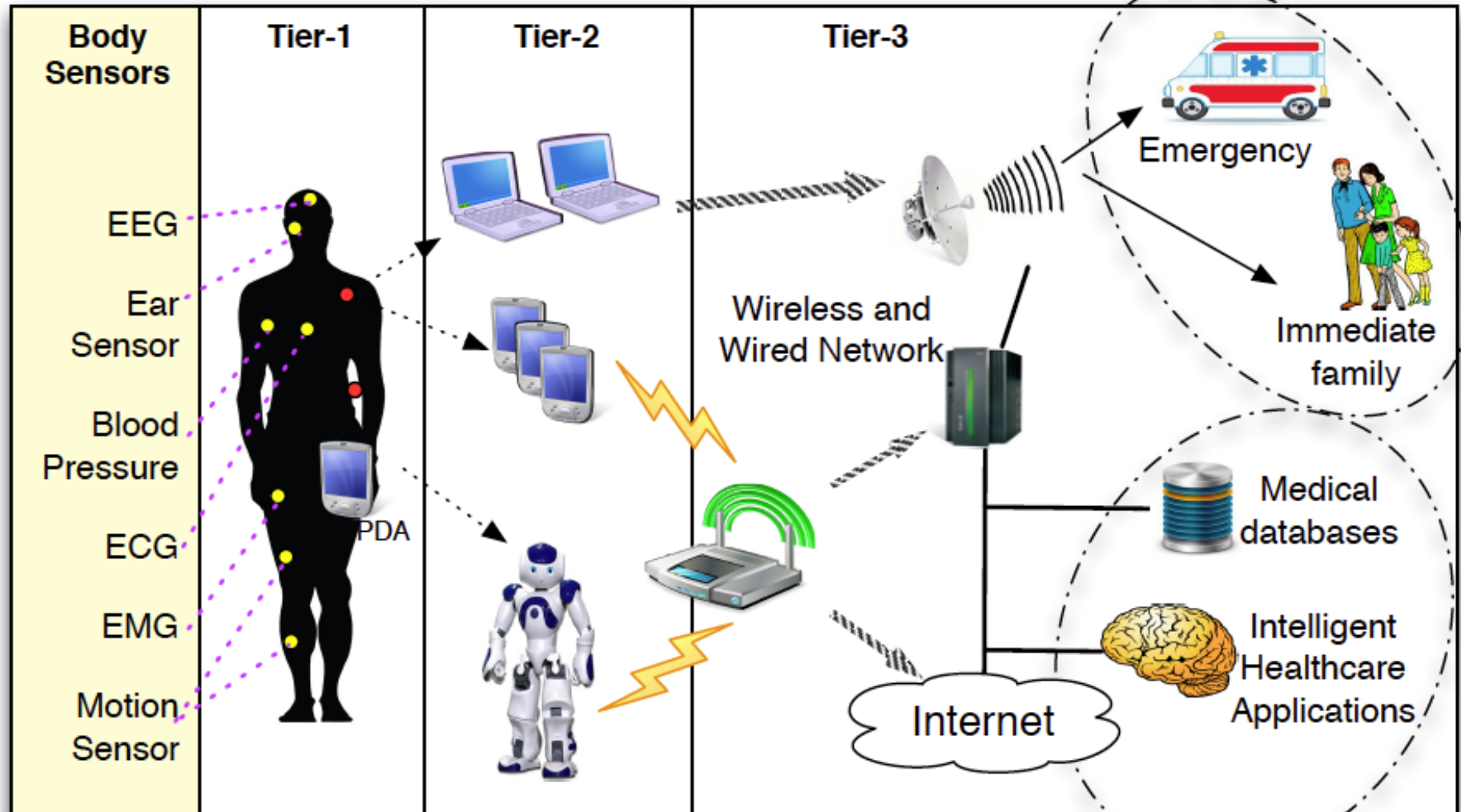
AMBIENT INTELLIGENCE



Sensors

Communication Layers

Alerting Side



AMBIENT SENSORS USED IN SMART ENVIRONMENTS

Sensor	Measurement	Data Format
PIR ¹	Motion	Categorical
Active Infrared	Motion/Identification	Categorical
RFID ²	Object Information	Categorical
Pressure	Pressure on Mat, Chair, etc.	Numeric
Smart Tiles	Pressure on Floor	Numeric
Magnetic Switches	Door/Cabinet Opening/Closing	Categorical
Ultrasonic	Motion	Numeric
Camera	Activity	Image
Microphone	Activity	Sound

¹ Passive Infrared Motion Sensor ² Radio Frequency Identification

BODY SENSORS

Sensor	Measurement	Data Rate
Accelerometer	Direction	High
Gyroscope	Orientation	High
Image/video	Activity	Very high
Glucometer	Blood Sugar	High
Blood Pressure	Oscillometric	Low
CO2 gas sensor	CO2 Concentration	Very low
ECG ¹	Cardiac Activity	High
EEG ²	Brain Activity	High
EMG ³	Muscle Activity	Very high
EOG ⁴	Eye Movement	High
Pulse oximetry	Blood Oxygen Saturation	Low
GSR (Galvanic Skin Response)	Perspiration	Very low
Thermal	Body Temperature	Very Low

¹ Electrocardiography ² Electroencephalography ³ Electromyography
⁴ Electrooculography

AMBIENT INTELLIGENCE METHODS

Activity
Recognition

AMBIENT INTELLIGENCE METHODS

Activity
Recognition

Behavioral Pattern
Discovery

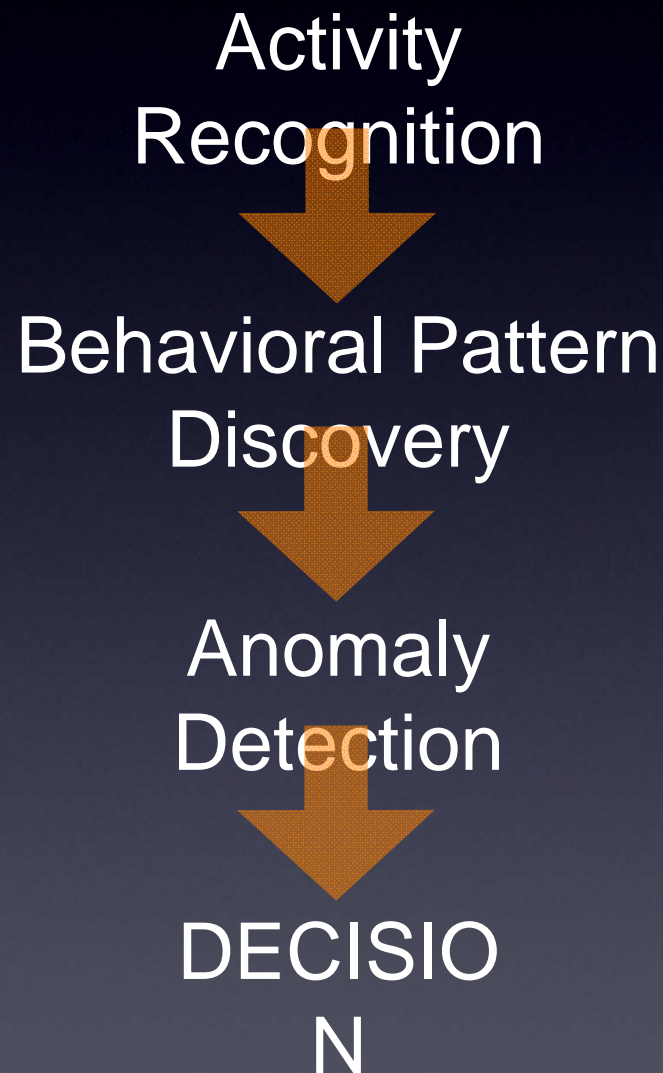
AMBIENT INTELLIGENCE METHODS

Activity
Recognition

Behavioral Pattern
Discovery

Anomaly
Detection

AMBIENT INTELLIGENCE METHODS



AMBIENT INTELLIGENCE FOR HOSPITALS

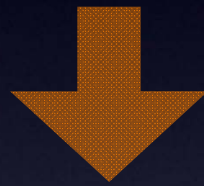
Continuous Health
Monitoring



Using sensor networks
for
monitoring physiological
measures (ECG, EEG,
etc.)

AMBIENT INTELLIGENCE FOR HOSPITALS

Continuous Behavioral
Monitoring



Using sensor networks for
monitoring human
behaviors
(Watching TV, Sitting,
etc.)

AMBIENT INTELLIGENCE FOR HOSPITALS

Monitoring for Emergency
Detection



Using sensor networks
for
detecting hazards, falls,
etc.

AMBIENT INTELLIGENCE FOR HOSPITALS

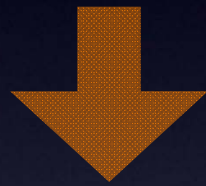
Assisted
Living



Creating smart
environments
for supporting patients and
elderly during their daily
activities

AMBIENT INTELLIGENCE FOR HOSPITALS

Persuasive Well-Being



Systems aimed at changing persons attitudes in order to motivate them to lead a healthier life style



Agent-based ambient intelligence for healthcare

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Abstract. Healthcare professionals, working in hospitals experience a high level of mobility due to their need for accessing patients' clinical records, medical devices distributed throughout the premises, and colleagues with whom they collaborate. In this paper, we present how autonomous agents provide capabilities of intelligence and proactivity to healthcare environments furnished with ubiquitous computing and medical devices, resulting thus, in an ambient intelligence (Aml) system. Autonomous agents enable ubiquitous technology to respond to users' particular conditions and demands. To support the building of this type of intelligent systems, we created the SALSA development framework. SALSA is a middleware designed to support the development of Aml environments based on autonomous agents. We illustrate the facilities provided by SALSA and its flexibility to iteratively implement an Aml system for a healthcare application scenario.

Chapter 9

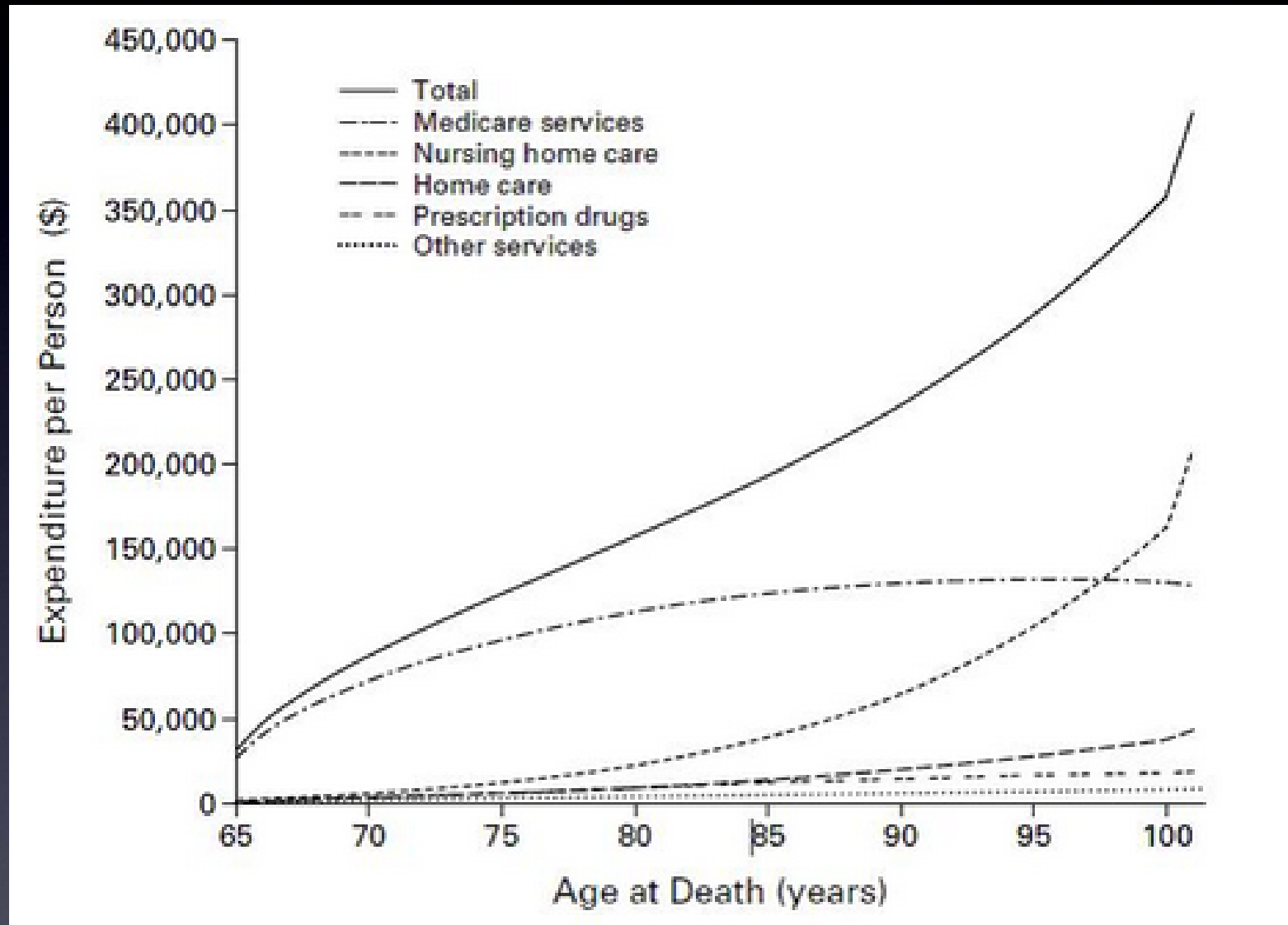
A Distributed Ambient Intelligence Based Multi-Agent System for Alzheimer Health Care

Dante I. Tapia, Sara Rodríguez, and Juan M. Corchado

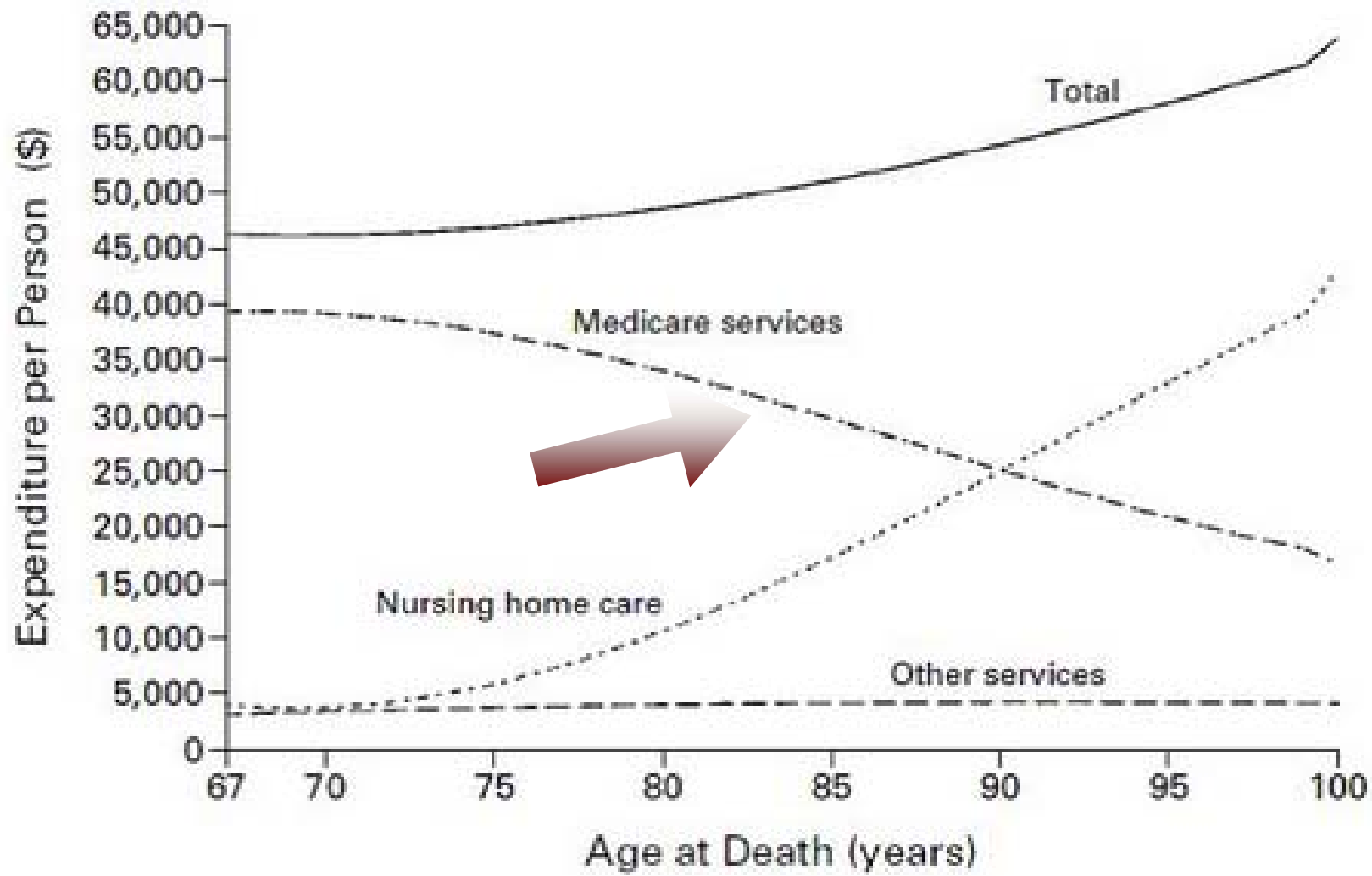
Abstract This chapter presents ALZ-MAS (*Alzheimer multi-agent system*),¹ an ambient intelligence (AmI)-based multi-agent system aimed at enhancing the assistance and health care for Alzheimer patients. The system makes use of several context-aware technologies that allow it to automatically obtain information from users and the environment in an evenly distributed way, focusing on the characteristics of ubiquity, awareness, intelligence, mobility, etc., all of which are concepts defined by AmI. ALZ-MAS makes use of a services oriented multi-agent architecture, called *flexible user and services oriented multi-agent architecture*, to distribute resources and enhance its performance. It is demonstrated that a SOA approach is adequate to build distributed and highly dynamic AmI-based multi-agent systems.

AGE ISSUES

Healthcare Expenditures From 65+



Healthcare Expenditures Last 2 Years Of Life



The population of older adults will grow dramatically over the next 50 years, **especially** the “**oldest old**” (those 85 and older)

The population of the “oldest old” is expected to grow by **377%** by the year 2050. These people use significantly more health care services than younger people.

Older adults are more likely to require the services of health professionals as a result of injuries and illnesses due to **greater physical vulnerability** (e.g., they are more likely to break bones in falls; they are more likely to contract pneumonia as a consequence of influenza).

Older adults consume far more **prescription** medications than younger people.

Baby boomer older adults will have a **smaller pool of potential family caregivers** than current older adults. They have had fewer children than their parents, and are more likely to have had **no children** (more than 12% of women in this cohort are childless). They are also more likely to be **divorced** (lifetime divorce rates are projected to be 53% for the cohort), and will thus be more likely to live alone as they enter old age.

The new demands placed on the health care system will not only include a need for greater **numbers of health care workers**, but may also involve changes in the way services are currently provided to older adults

More services will be provided at the homes of patients, in group settings, in nursing homes and assisted living facilities, or through the Internet.

Technology will play a growing role in heightening productivity among health professionals by allowing them to **serve more** elderly patients.

n = ALL

Thoughts on Lean/SS

LEAN

Removes waste
Increases speed
Removes non-value added process steps
Fixes connections between process steps

Six Sigma

Reduces variation
Improves quality
Iterates reducing variation
Optimizes process steps

Speed + *Accuracy*

Background

Surgical site infections (SSIs) are the second most common healthcare-associated infection (HAI). SSI rates are disproportionately higher among patients following colorectal surgeries. Resulting SSIs are known to have significant patient complications with adverse clinical and economic impact.

Why Colorectal Surgical Site Infections?

Surgical site infections (SSIs) are a major cause of patient injury and death. They increase health care costs and prolong hospitalization. In a 2002 study of U.S hospitals, the estimated number of healthcare-associated infections (HAIs) was approximately 1.7 million. SSIs were the second most common HAI, accounting for 22 percent of all HAIs among hospitalized patients. SSIs occur in 2-5 percent of patients undergoing inpatient surgery in the U.S., resulting in approximately 500,000 SSIs each year. Each SSI is associated with approximately 7-10 additional postoperative hospital days. Patients with an SSI have a 2-11 times higher risk of death, compared with operative patients without an SSI. Of SSI deaths among patients, 77 percent are directly attributable to SSI. SSIs are believed to account for up to \$10 billion annually in health care expenditures. Attributable costs of SSI vary depending on the type of operative procedure and the type of infecting pathogen. Published estimates range from \$3,000 to \$29,000.

Quality improvement methods

In partnership with the American College of Surgeons, the Joint Commission Center for Transforming Healthcare led a multi-institutional collaboration of seven leading U.S. hospitals, established to reduce colorectal SSIs. Preventing colorectal SSIs is a complex problem with multiple variables specific to patients and patient populations, institutional factors, surgical practice and process. Recognizing this complexity,

participating hospitals used Lean Six Sigma and change management methods to understand why infections were occurring at their facilities and how to prevent them.

Outcome measures were the observed rate of colorectal SSIs and the ACS NSQIP observed-to-expected (O/E) ratio for colorectal SSIs. Participants focused on improving the care received by colorectal surgical patients, from preadmission to 30-days after surgery.

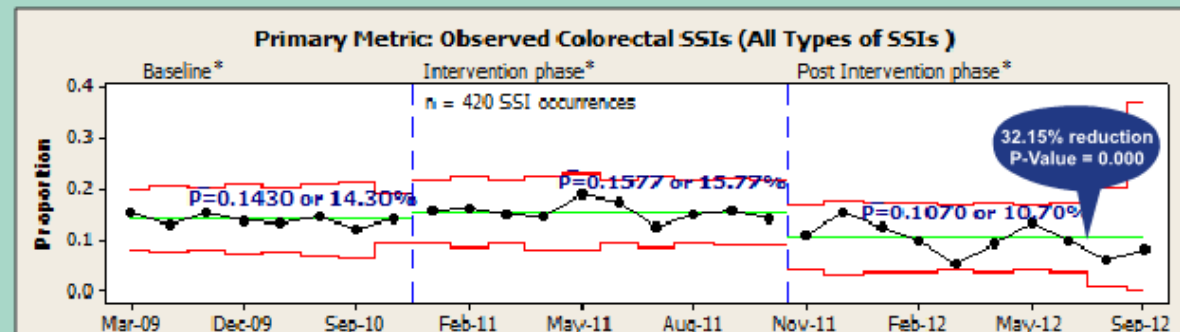
Site		# of Beds	# of Colorectal Surgeries/Month	# of Colorectal Surgeries/Year	# of Surgeons Performing Colorectal Surgeries
Cedars-Sinai Medical Center		923	45	536	46
Cleveland Clinic		1,200	237	2,854	16
Mayo Clinic-Rochester Methodist Hospital		700	208	2,500	8
North Shore-Long Island Jewish Health System		1,290	55	662	31
Northwestern Memorial Hospital		894	33	404	8
OSF Saint Francis Medical Center		616	21	250	13
Stanford Hospital & Clinics		613	32	380	47
Total:				7,586	

Colorectal Surgical Site Infection Project Results

The project launched in August 2010.

- **Figure 1** shows aggregate performance over the course of the project. The overall SSI rate from colorectal surgical procedures at the 7 participating hospitals was at 15.77 percent of patients during a 10-month intervention phase when hospitals started adopting changes. During the post intervention phase, once all changes were completed, the infection rate dropped to 10.70 percent. Participating hospitals reduced all types of SSIs by 32 percent (135 SSIs) after all solutions were implemented.

Figure 1



Each year, more than 600,000 surgical procedures are performed in the United States to treat a number of colon diseases. (Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), 2013: at: <http://www.sages.org/publication/id/PI09/>)

Applying results to the national estimate show that, by using the methods, solutions and lessons learned through the SSI project, approximately 30,420 infections from colorectal surgeries can be prevented with an annual savings of up to \$834 million.

Management Practices and the Quality of Care in Cardiac Units

K. John McConnell, PhD; Richard C. Lindrooth, PhD; Douglas R. Wholey, PhD; Thomas M. Maddox, MD; Nick Bloom, PhD

Importance: To improve the quality of health care, many researchers have suggested that health care institutions adopt management approaches that have been successful in the manufacturing and technology sectors. However, relatively little information exists about how these practices are disseminated in hospitals and whether they are associated with better performance.

Objectives: To describe the variation in management practices among a large sample of hospital cardiac care units; assess association of these practices with processes of care, readmissions, and mortality for patients with acute myocardial infarction (AMI); and suggest specific directions for the testing and dissemination of health care management approaches.

Design: We adapted an approach used to measure management and organizational practices in manufacturing to collect management data on cardiac units. We scored performance in 18 practices using the following 4 dimensions: standardizing care, tracking of key performance indicators, setting targets, and incentivizing employees. We used multivariate analyses to assess the relationship of management practices with process-of-care measures, 30-day risk-adjusted mortality, and 30-day readmissions for acute myocardial infarction (AMI).

Setting: Cardiac units in US hospitals.

Participants: Five hundred ninety-seven cardiac units, representing 51.5% of hospitals with interventional cardiac catheterization laboratories and at least 25 annual AMI discharges.

Main Outcome Measures: Process-of-care measures, 30-day risk-adjusted mortality, and 30-day readmissions for AMI.

Results: We found a wide distribution in management practices, with fewer than 20% of hospitals scoring a 4 or a 5 (best practice) on more than 9 measures. In multivariate analyses, management practices were significantly correlated with mortality ($P=.01$) and 6 of 6 process measures ($P<.05$). No statistically significant association was found between management and 30-day readmissions.

Conclusions and Relevance: The use of management practices adopted from manufacturing sectors is associated with higher process-of-care measures and lower 30-day AMI mortality. Given the wide differences in management practices across hospitals, dissemination of these practices may be beneficial in achieving high-quality outcomes.

JAMA Intern Med.

Published online March 18, 2013.

doi:10.1001/jamainternmed.2013.3577

Table 1. Management Practice Dimensions

Practice	Basis of Score ^a
Standardizing Care/Lean Operations	
1. Admitting the patient	Is the admission process standardized (including predefined order sets) or does information and process vary by admitting team or physician?
2. Standardization and protocols within the unit	Does the approach to patient care vary substantially by provider, or does the unit rely on standardized processes (including checklists and bundles)?
3. Coordination on handoffs	Is the handoff an opportunity for miscommunication or lost information, or are handoff protocols known and used consistently by all staff?
4. Communication among staff	Do nurses and physicians practice bidirectional communication or is there, for example, relatively little opportunity for nurses to provide input on physician work?
5. Patient focus	Are multiple methods used to engage patient feedback and concerns? How do patients and family members receive or provide information when providers are absent?
6. Discharging the patient	Are patients adequately educated for posthospitalization, and is care coordinated with outpatient follow-up?
Performance Measurement	
7. Technology adoption	Are new technologies and drugs adopted based on evidence or does no formal process exist for the adoption of new technologies?
8. Monitoring errors/safety	Are strategies in place for monitoring patient safety and encouraging efforts to avoid errors? Are these efforts proactive or do changes happen primarily after an error occurs?
9. Continuous improvement	Are process improvements made only when problems arise, or are they actively sought for continuous improvement as part of a normal business process?
10. Performance review	Is performance reviewed infrequently and only on a success/failure scale, or is performance reviewed continually with an expectation of continuous improvement?
11. Performance dialogue	In review/performance conversations, to what extent are the purpose, data, agenda, and follow-up steps (like coaching) clear to all parties?
Targets	
12. Target balance	Are goals exclusively budget driven, or does a balance of targets include financial considerations, patient centeredness, and employee well-being?
13. Target interconnection	Are the unit's objectives tied to the overall performance of the hospital, and is it clear to employees how these targets connect?
14. Target stretch	Are the unit's targets appropriately difficult to achieve?
Employee Incentives	
15. Rewarding high performers	To what extent are people in the unit rewarded equally irrespective of performance level, or is performance clearly related to accountability and rewards? Are rewards tied to teamwork and coordination?
16. Removing poor performers	Are poor performers rarely removed, or are they retrained and/or moved into different roles or out of the company as soon as the weakness is identified?
17. Managing talent	To what extent are senior managers evaluated and held accountable for attracting, retaining, and developing talent throughout the organization?
18. Retaining talent	Does the unit do relatively little to retain top talent or does it demonstrate flexibility and effort in retaining top talent?

Table 2. Management Practice Interview Scoring Guide and Example Responses for 4 of the 18 Practices

	Score		
	1	3	5
Practice 2: Standardization and Protocols Within the Unit			
Scoring grid	Little standardization and few protocols exist.	Protocols have been created but may exist only for certain patient groups or are not commonly used because they are too complicated or not monitored adequately.	Protocols exist for all patients, are known and used by all clinical staff, and are regularly followed up through some form of monitoring or oversight.
Examples	Unit has not standardized main clinical procedures but it intends to during the next year. Nurse managers assume that nurses and physicians are "on the same page" in terms of protocols. Medical records are reviewed monthly for completion.	Unit has protocols for key procedures (eg, peripherally inserted catheters). Clinicians receive training when hired and have annual competency checks. Managers rely primarily on direct observation to ensure that individuals are conducting procedures appropriately and consistently.	Main clinical processes are standardized and regularly monitored. Bundles exist for all key clinical procedures. Each bundle has an associated checklist that is audited regularly for compliance. Staff must pass competency examinations on all unit processes and procedures quarterly. Staff must attend regular practice update and skills review meetings.
Hospitals receiving this score, %	1.9	42.9	10.6
Practice 8: Monitoring Errors and Safety			
Scoring grid	Staff recognize the importance of avoiding errors but safety depends primarily on individual efforts.	Strategies are in place but not aggressively monitored; staff are aware of efforts to reduce/avoid adverse outcomes, but barriers exist to discussing them or making the necessary changes.	Strategies for avoiding/reducing errors are in place and monitored; near misses are viewed as evidence of systems that should be improved to reduce potential harm to patients.
Examples	Hospital leadership regularly communicates about the importance of patient safety; all employees are expected to work hard to avoid medical errors. A hospital-wide reporting system for errors exists but is not used most of the time. Audits are occasionally performed when problems are reported to determine fault.	A bar-coding system is in place to avoid medication errors. The computerized system allows for continuous monitoring but the hospital currently does not have the budget to increase the quality department's staff. Nurse supervisors perform observational audits on this strategy and others to ensure proper use. The quality department reviews errors monthly with the manager.	The unit has adopted a systems-oriented approach to medication error reduction that includes steps to reduce workplace fatigue and automated medication dispensing devices. A unit safety officer reviews reported errors immediately. On "Patient Safety Friday," multidisciplinary teams review errors and near misses. Unit uses Pareto medical records and failure mode and effects analysis for risk management.
Hospitals receiving this score, %	1.7	38.5	12.7

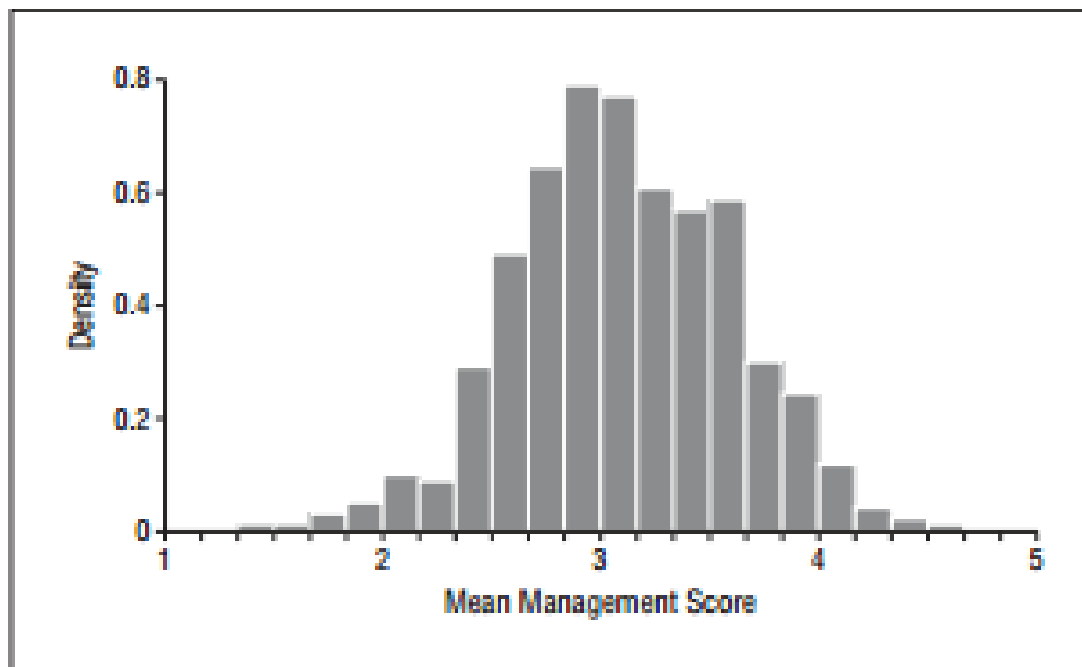





Figure. Distribution of overall management practice score. Mean scores were calculated for practices 1 through 18 (described in Table 1).

Conclusions and Relevance: The use of management practices adopted from manufacturing sectors is associated with higher process-of-care measures and lower 30-day AMI mortality. Given the wide differences in management practices across hospitals, dissemination of these practices may be beneficial in achieving high-quality outcomes.

In almost all studies,
failure was caused by
lack of **commitment**

Ethics

<p>Public Match This person would like to contact you.</p> <p>view message</p>	<p>4th Cousin</p>	<p>3rd to 6th Cousin</p>	 <p>David Alan Stanbrough United States Northern European ancestry Maternal Haplogroup H17 Paternal Haplogroup I1* Surnames: PATERNAL, Bates, Beals, Bollen or Bullen, or Bowne, ... (more)</p>
<p>Public Match This person would like to contact you.</p> <p>view message</p>	<p>4th Cousin</p>	<p>3rd to 7th Cousin</p>	 <p>Joe Ernest Carranza Multiple region ancestry Maternal Haplogroup H2a2b1 Paternal Haplogroup Q1a3 Surnames: Agee, Basset, Bassett, Caballero, Carranza, ... (more)</p>
<p>Public Match This person would like to contact you.</p> <p>view message</p>	<p>4th Cousin</p>	<p>3rd to 7th Cousin</p>	 <p>Angelee Mullins Fynan United States Northern European ancestry Maternal Haplogroup T1 Surnames: MULLINS, KY-VA, SANDERS/SAUNDERS, KY-VA, FLEMING, ... (more)</p>

Genetic discrimination in employment, insurance

Iceland exploits its genetic history



Gene pool: Iceland's latest natural resource is its people



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Sheriffs want lists of patients using painkillers

ARTICLE

COMMENTS (89)



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BY LYNN BONNER - STAFF WRITER

Sheriffs in North Carolina want access to state computer records identifying anyone with prescriptions for powerful painkillers and other controlled substances.



Published on FierceHealthIT (<http://www.fiercehealthit.com>)

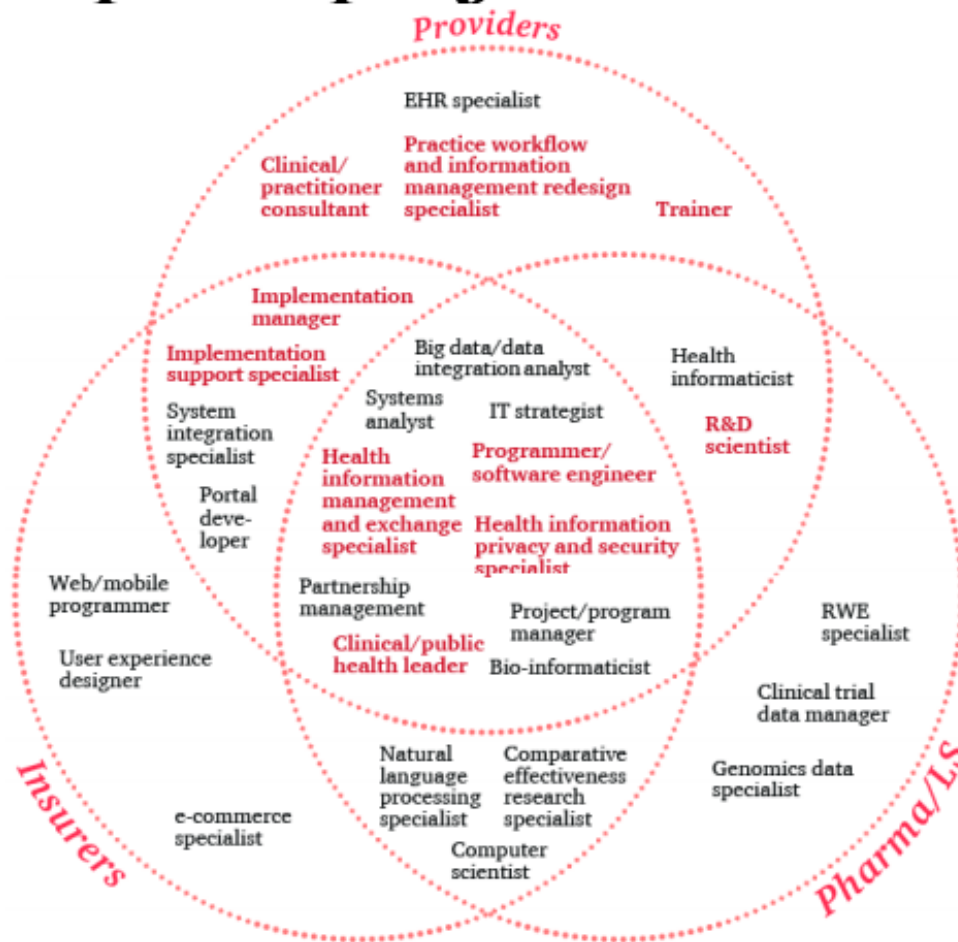
Peel pushes for 'informed consent' over every element of patient data

WRAP UP

Be nice to your nerds

PWC Study

Health sectors have similar needs and may compete for certain specialists, including those graduating from HIT workforce development programs



■ ONC HIT workforce development program roles

The most meaningful
use from
“meaningful use”

Data from EMR
organized in common
format + **DNA** + Mobile



Exponential Growth Of Medical Knowledge

Increased Computing Power

Art Of Medicine

Science Of Medicine

Hospitals are becoming I.T. Institutions



Why Is Facebook Worth \$155 Billion?



DATA



UNVERIFIED
DATA





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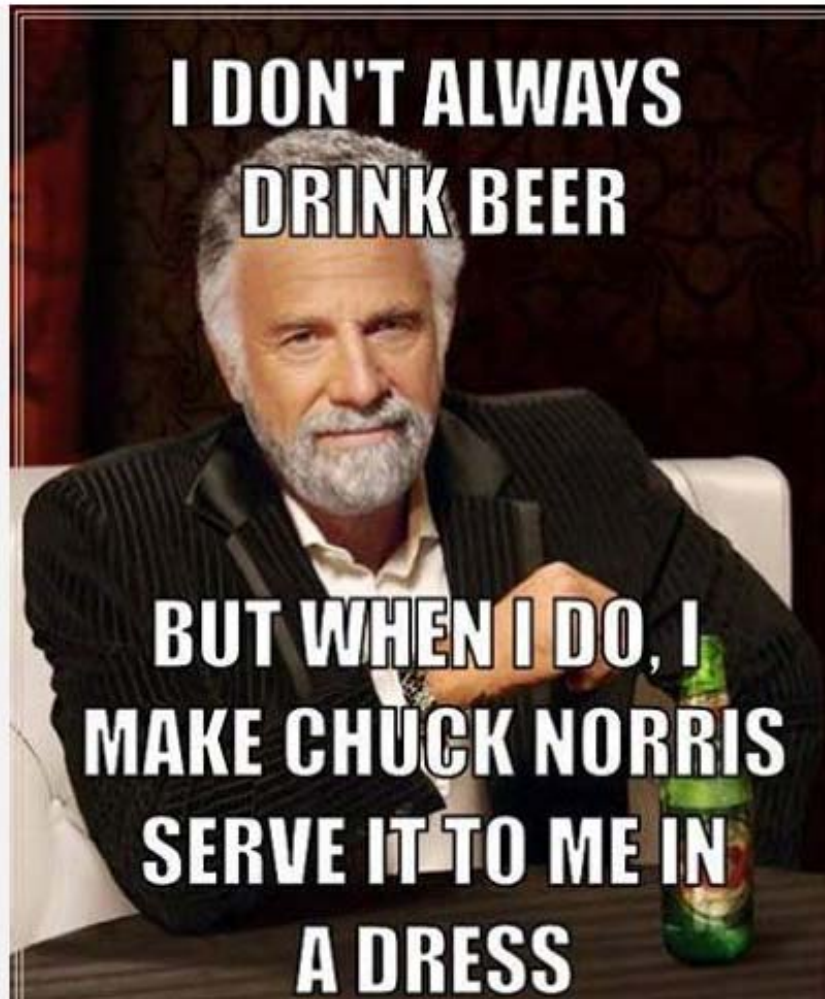
Friends 3

More ▾



Dee J Stohley

February 25



About

 **Special Agent at Quest Defence Laboratory**
1967 to present

 **Studied at Freie Universität Berlin**
Past: Tough Knocks

 **Lives in Edgefield, South Carolina**

 **From Bangalore, India**

TV Shows · 3



Hee Haw



Captain Kangaroo



Gomer Pyle, U.S.M.C.

Music · 4



Bobby Sherman



Josie and the Pussycat...



The Archies



Miles Davis

Bobby Sherman





Dee J Stohley was tagged in 3 photos in Elaine Taylor's album

Happy Birthday!

23 hours ago 📷



ALL OF FACEBOOK'S DATA ABOUT ME IS B.S.





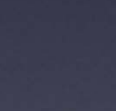
About

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TV Shows · 3

 Hee Haw	 Captain Kangaroo	 Gomer Pyle, U.S.M.C.
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Music · 4

 Bobby Sherman	 Josie and the Pussycat...	 The Archies
 Bobby Sherman	+	
 Miles Davis		

Why Is Facebook Worth \$155 Billion?





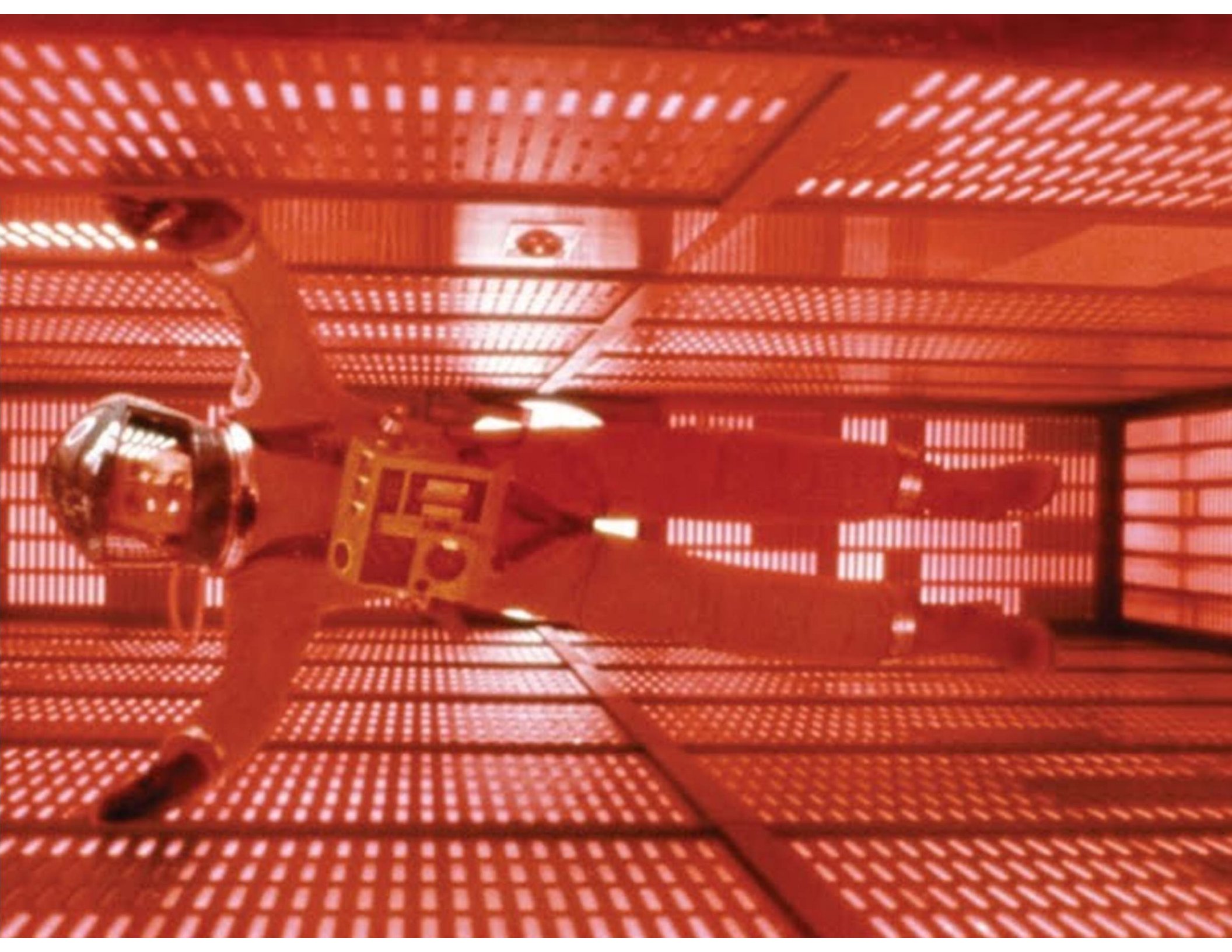
Because a lot
of their **DATA**
is right.



And **inferences**
can be made
from that **data**,
even with the
noise

n = ALL

Health Care Re-Form





THE
BLACK SWAN



The Impact of the
HIGHLY IMPROBABLE

Nassim Nicholas Taleb