"The Quantified Self Movement: The Technologies That Are Revolutionizing Health and Fitness"

Panel Discussion

MIT Enterprise Forum San Diego

UC San Diego

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Calit2 Has Had a Vision of "the Digital Transformation of Health" for Over a Decade

www.bodymedia.com



- **Next Step—Putting You On-Line!**
  - Wireless Internet Transmission
  - Key Metabolic and Physical Variables
  - Model -- Dozens of Processors and 60 Sensors / Actuators Inside of our Cars
- **Post-Genomic Individualized Medicine**
  - Combine
    - Genetic Code
    - Body Data Flow
  - Use Powerful AI Data Mining Techniques

The Content of This Slide from 2001 Larry Smarr Calit2 Talk on Digitally Enabled Genomic Medicine

From the First San Francisco QS Meetup in 2008 To 116 Cities in 37 Countries in Four Years

Gary's 2010 TED Talk on the Quantified Self has been Watched More Than 350,000 Times

Quantified Self Meetup Groups



Groups	Members	Interested	Cities	Countries
157	27,814	7,373	116	37

In 2013 QS Went Mainstream

TECH 1/06/2013 @ 3:01PM | 12,213 views

Forbes

CES 2013: The Year of The Quantified Self?



BBC Monitor Me documentary about Quantified Self

September 2, 2013

The Self-Monitoring Business Has Reached Market Takeoff

- MyFitnessPal
  - 40 Million Users
  - Aug 2013 Raised $18M Series A, Led by Kleiner Perkins
- Fitbit
  - Has Raised ~$70M
- BodyMedia Was Bought by Jawbone
  - For ~$100M
- Zeo Sleep Monitor
  - Closed Down in 2013

More Mergers Likely as the Shakeout Continues

Quantifying Your Body to Drive Behavior Change Works!

Age 41



Age 51

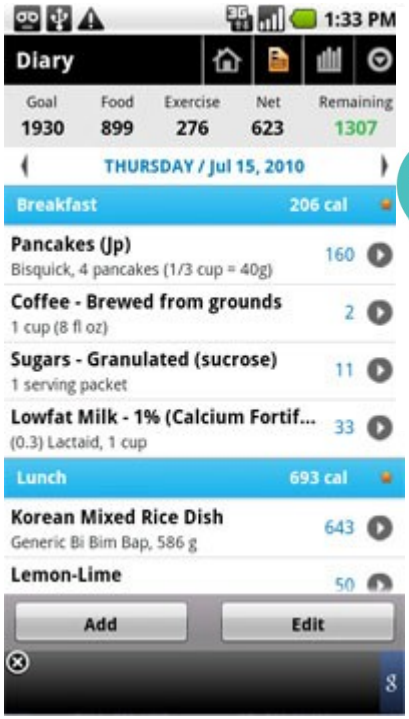


Age 61

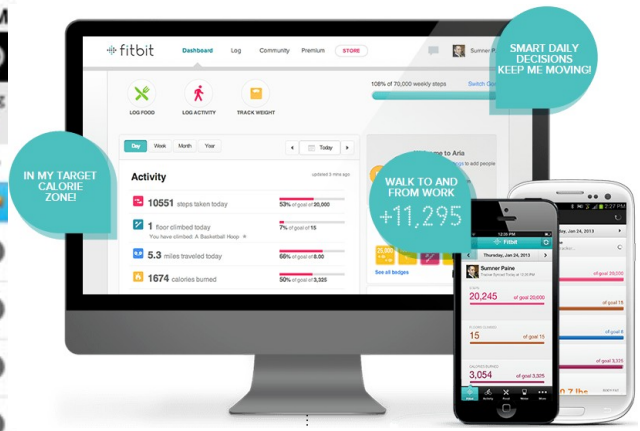


I Reversed My Body's Decline By Quantifying and Altering Nutrition and Exercise

How to Integrate the Sensors I Have Used To Get an Overall View of My Health?



MyFitnessPal-
Calories Ingested



FitBit -
Daily Steps &
Calories Burned



Withing/iPhone-
Blood Pressure





EM Wave PC-
Stress

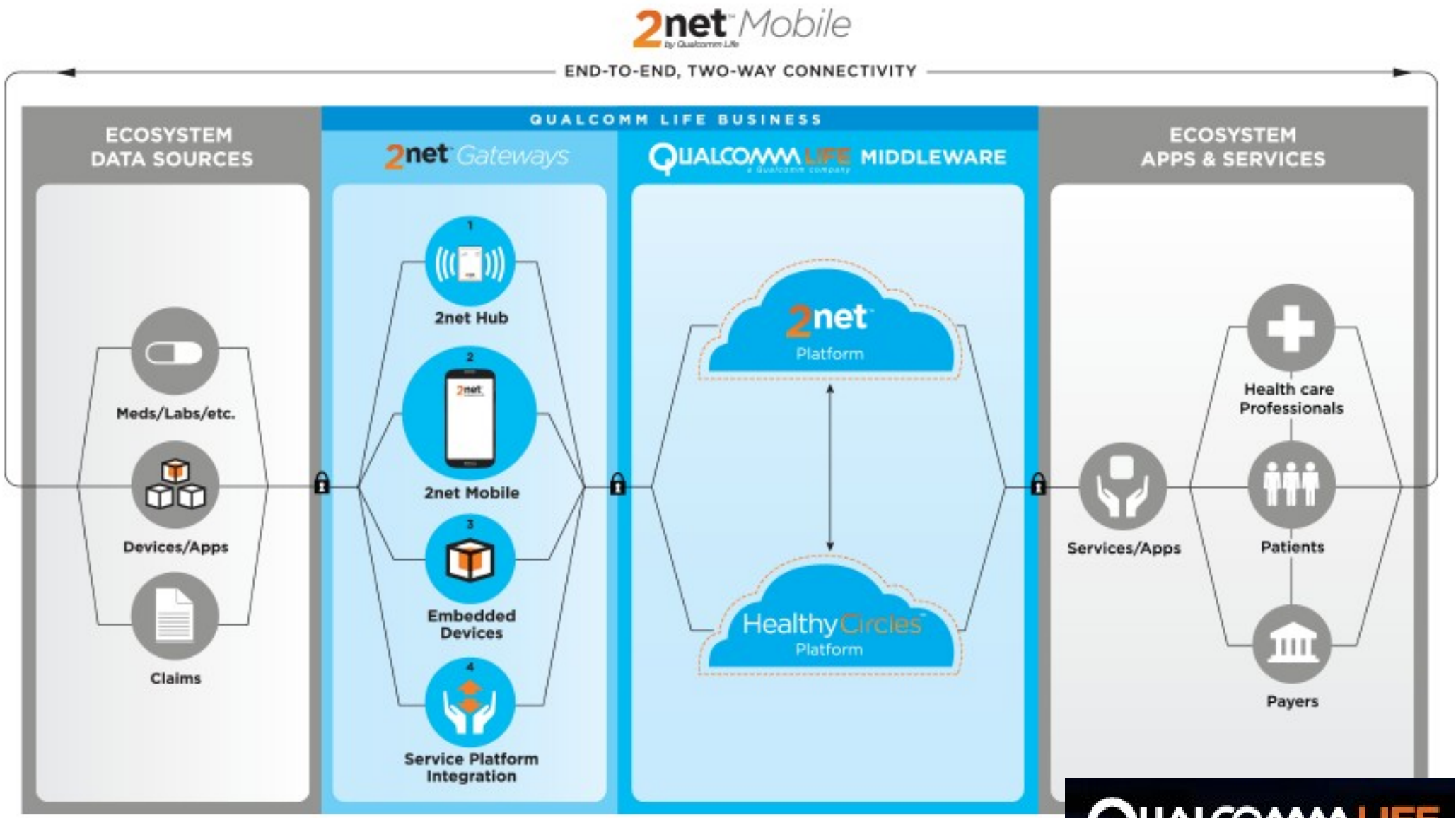


Azumio-Heart Rate



Zeo-Sleep

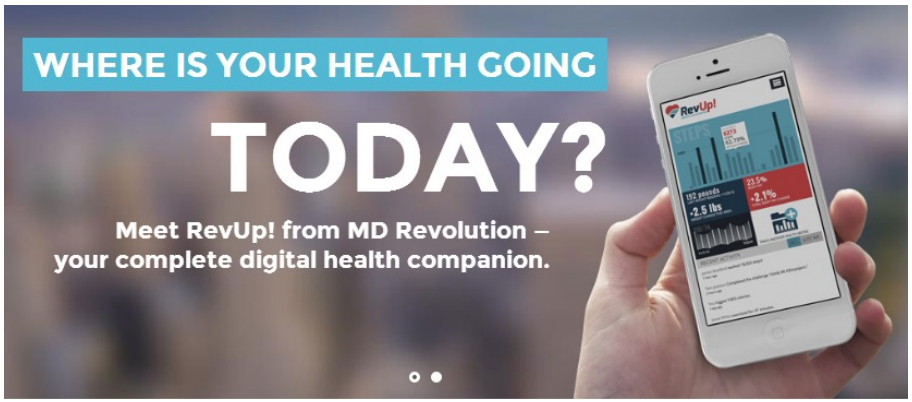
End-to-End Connectivity for Quantified Health Data Is Emerging

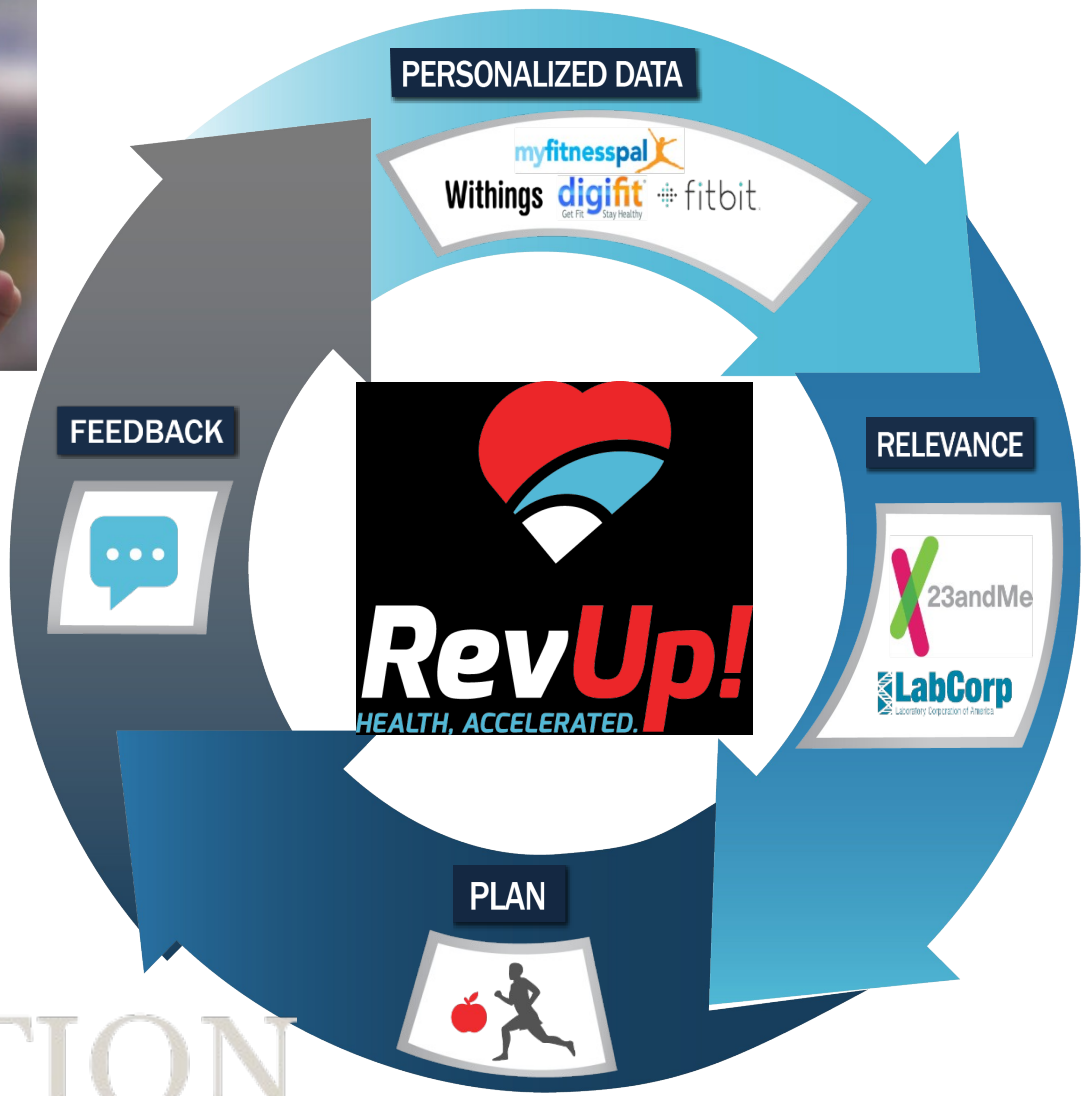


Source: Rick Valencia, Qualcomm Life

QUALCOMM LIFE a Qualcomm company

RevUp! Completes the Behavior Feedback Loop





MD REVOLUTION

Source: Samir Damani, MD Revolution

From Tracking
To Improving Your Body

pear

Fitness 2.0
Quantified self

pedometers
numbers
no context
not actionable

HR monitors

Lifestyle tracker

medical tracking







Fitness 3.0
Smart, immersive solution

guidance - not data

Dawn of era of intimate devices:
knows user - knows what is right

TRAIN RIGHT - MAKE PROGRESS

dynamic, interactive
motivational
real-time coaching

true biofeedback with
heart rate

Source: Kristian Rauhala, PEAR Sports LLC

Platforms Enable Expanding Ecosystems Empowering Many to Serve Diverse Customer Sets



Source: Kristian Rauhala, PEAR Sports LLC

mHealth Technology Progression

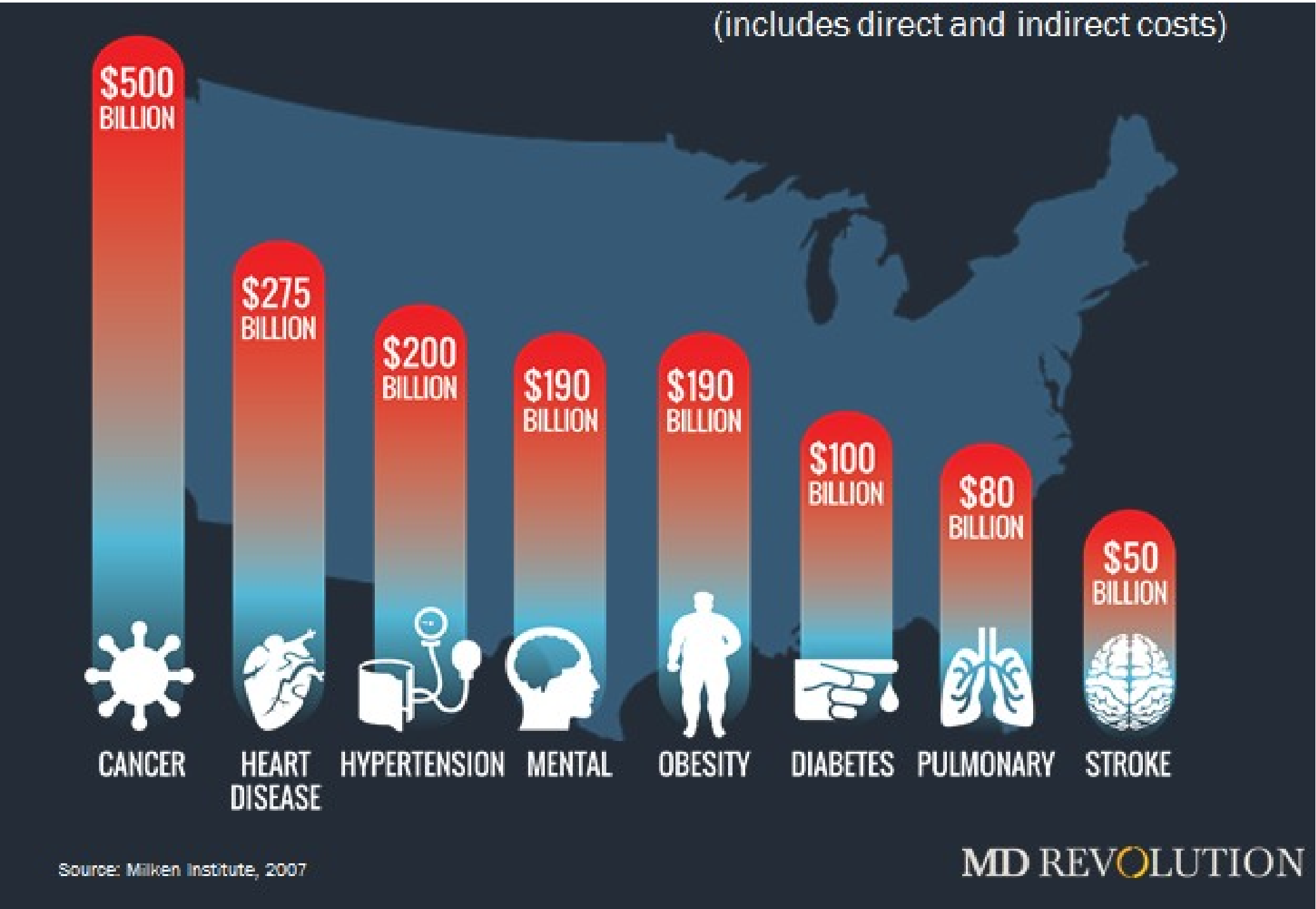


Mobile Health Market Projected to be $30B-$60B by 2015

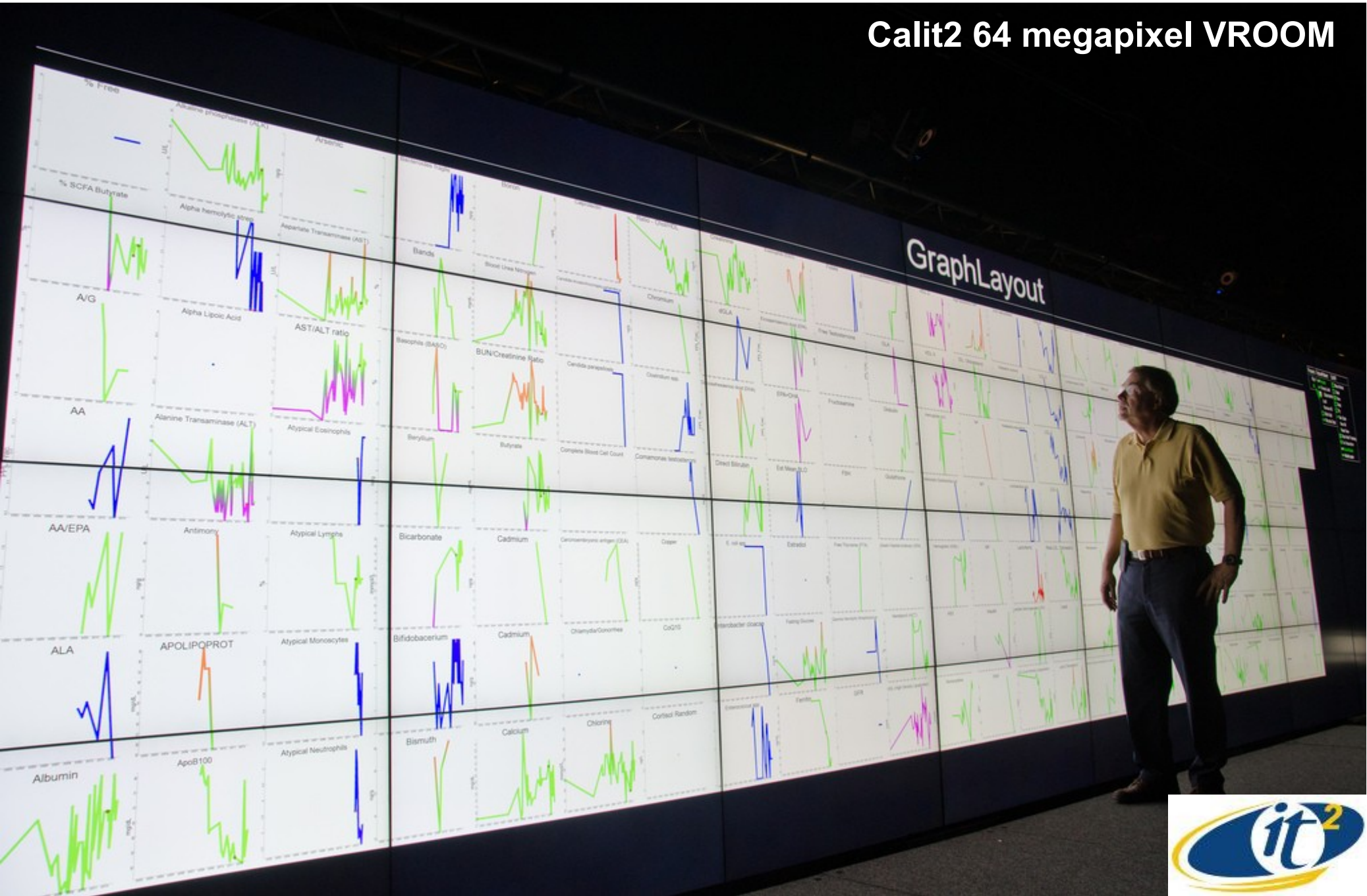
Source: Rick Valencia, Qualcomm Life

QUALCOMM LIFE
a Qualcomm company

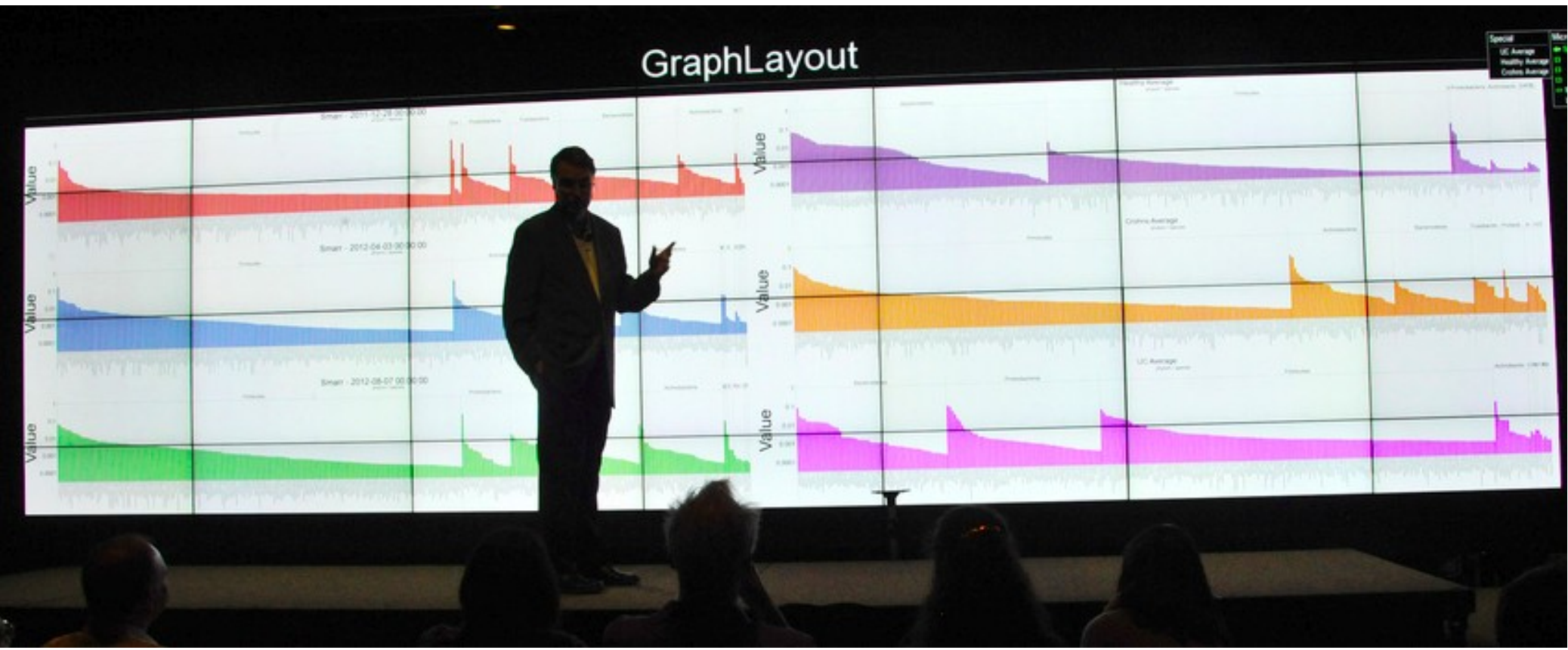
Chronic Disease National Economic Impact



Visualizing Time Series of 150 LS Blood and Stool Variables, Each Over 5 Years



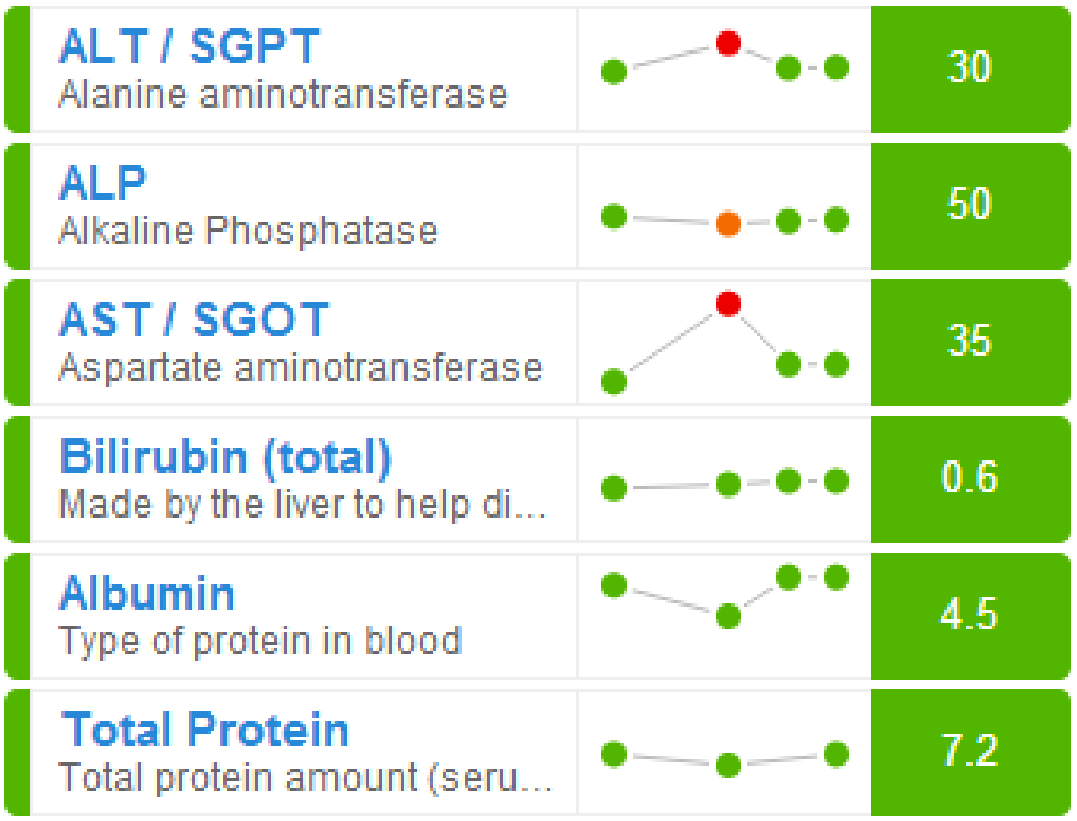
Using Scalable Visualization Allows Comparison of the Relative Abundance of 200 Microbe Species



Comparing 3 LS Time Snapshots (Left)
with Healthy, Crohn's, UC (Right Top to Bottom)

Calit2 VROOM-FuturePatient Expedition

Startups are Already in the Internal Quantified Self Space!



WellnessFX Baseline includes:

- A blood draw at a partner lab
- A 20-minute health consultation with a practitioner you choose from our network*
- Your lab results loaded into your private WellnessFX dashboard
- Your satisfaction guaranteed

uBiome -- Sequencing Your Microbiome

Be a citizen scientist and help us sequence the human microbiome. Learn about your health, advance science, and CHANGE THE WORLD!

Health – San Francisco, United States