"Adding Consumer-Generated and Microbiome Data to the Electronic Medical Record"

Using Big Data to Advance Healthcare Panel
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Consumer Self Measurement is Exploding Totally Outside of the Medical Complex

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



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

I Arrived in La Jolla in 2000 After 20 Years in the Midwest and Decided to Move Against the Obesity Trend

Age 41



Age 51



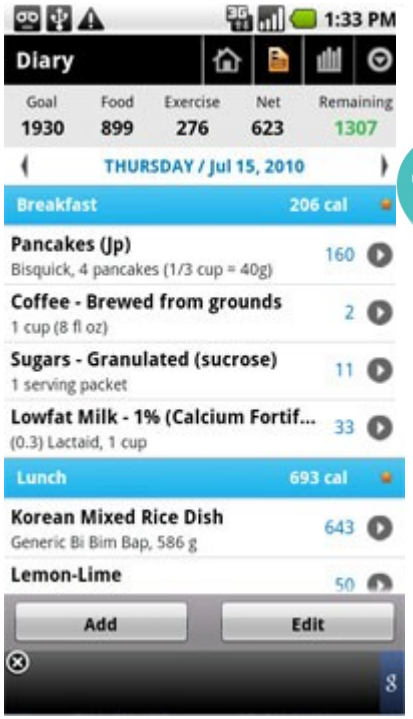
Age 61



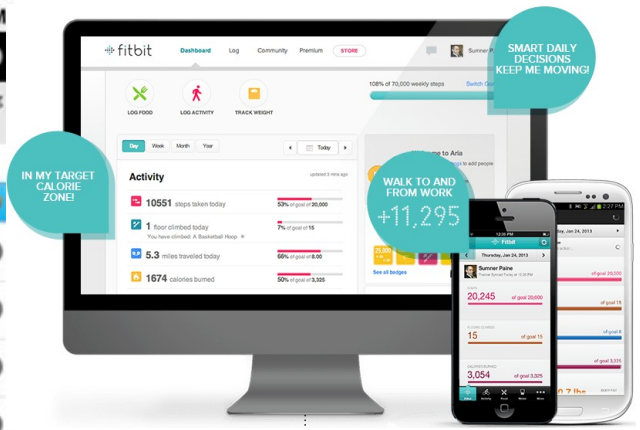
I Reversed My Body's Decline By Quantifying and Altering Nutrition and Exercise

http://lsmarr.calit2.net/repository/LS_reading_recommendations_FiRe_2011.pdf

I Used a Variety of Emerging Personal Sensors To Quantify My Body & Drive Behavioral Change



MyFitnessPal-
Calories Ingested



FitBit -
Daily Steps &
Calories Burned



Withings/iPhone-
Blood Pressure





Withings WiFi Scale -
Daily Weight

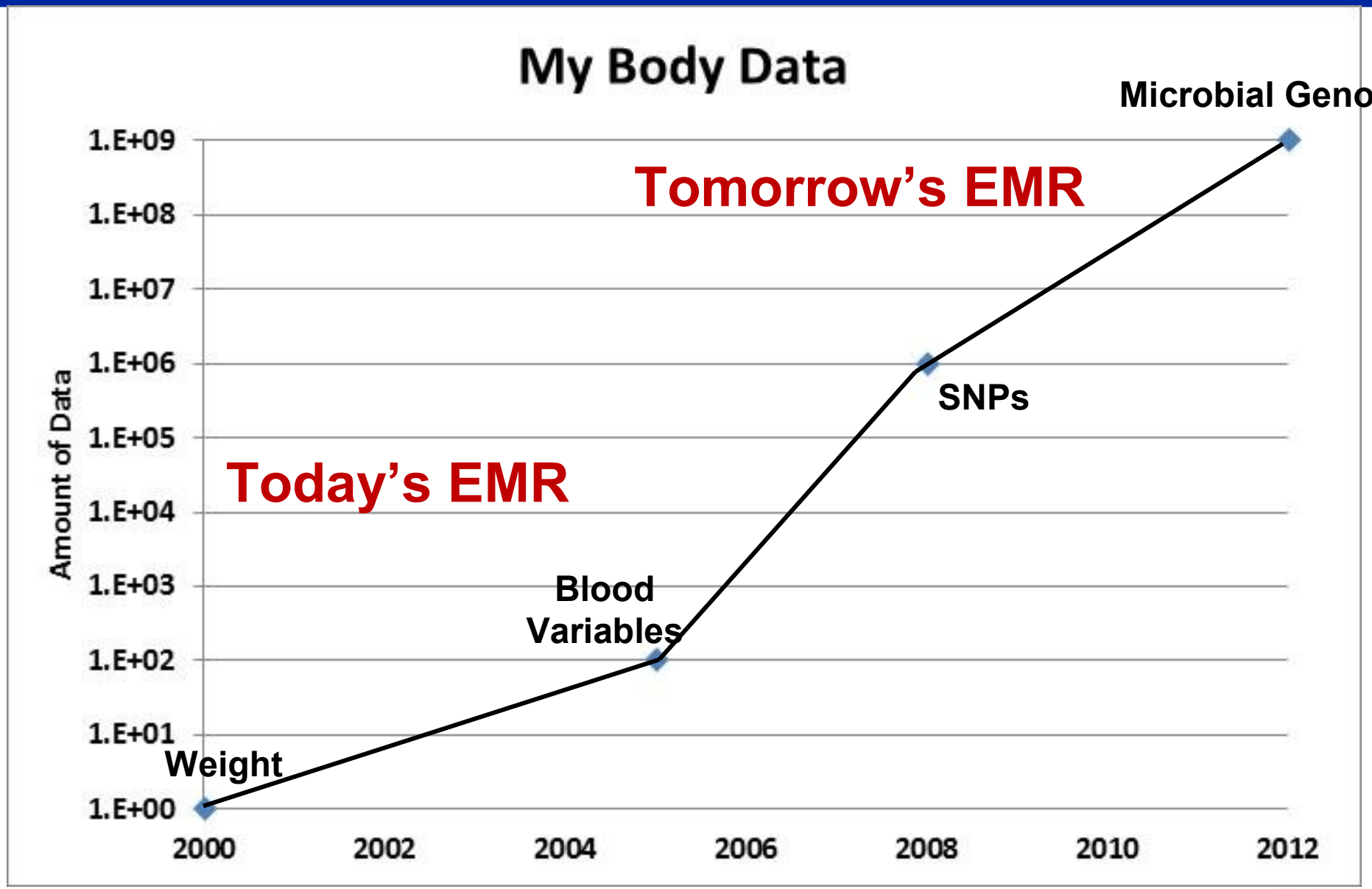


Zeo-Sleep

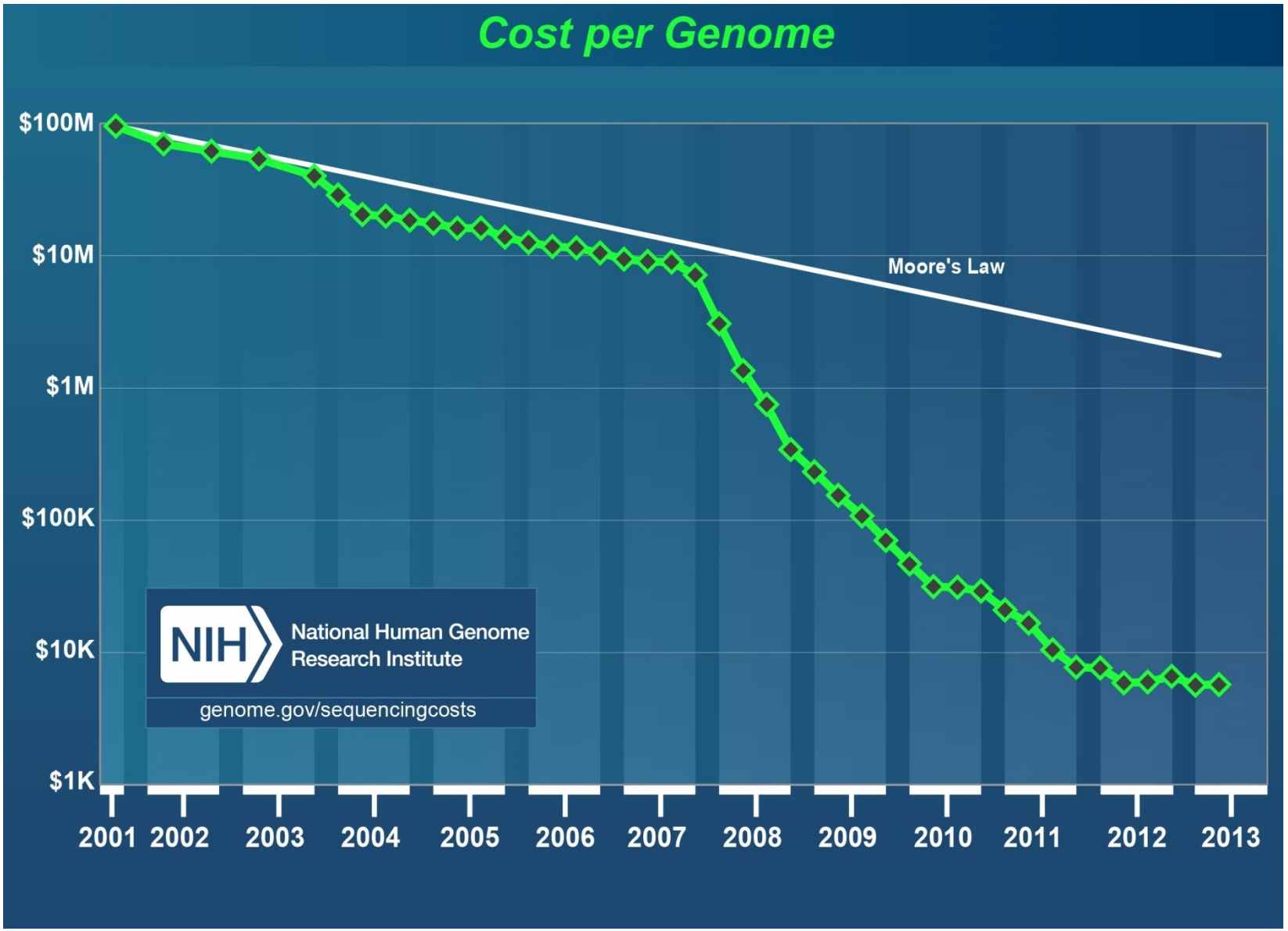


Azumio-Heart Rate

From One to a Billion Data Points Defining Me: Big Data Coming to the Electronic Medical Record (EMR)



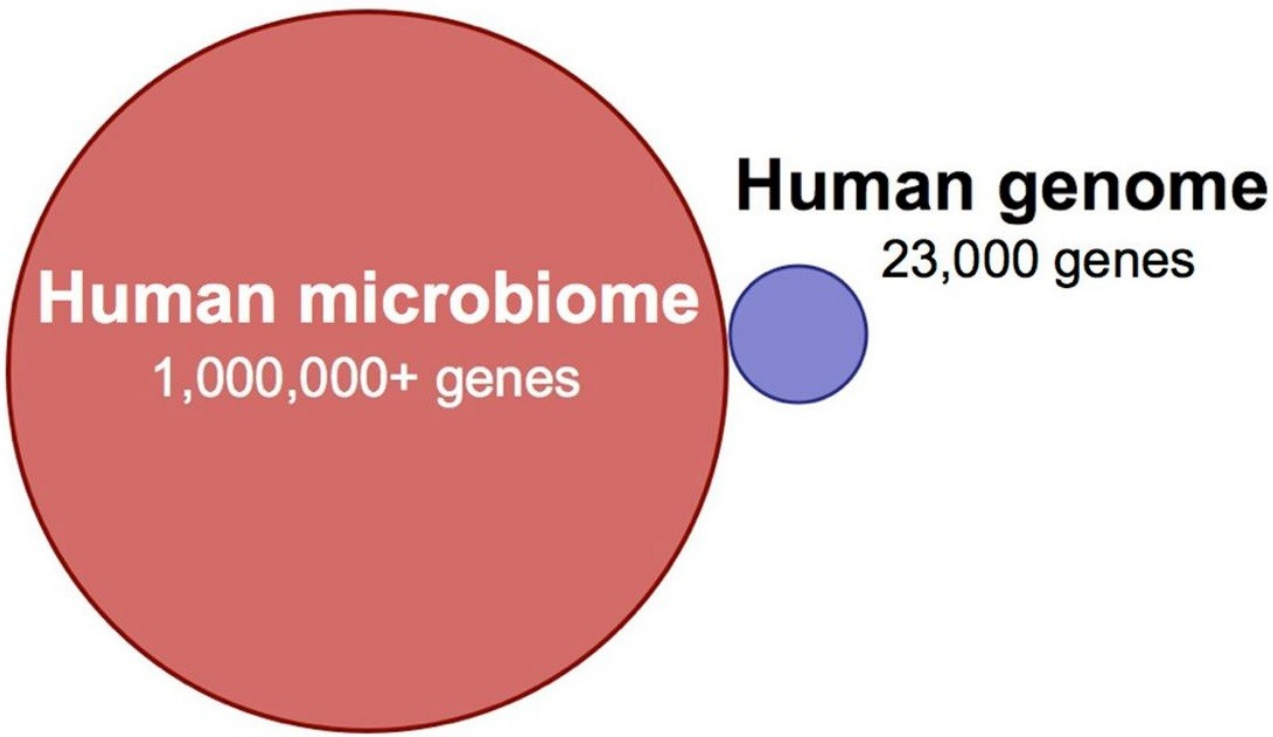
The Cost of Sequencing a Human Genome Has Fallen Over 10,000x in the Last Ten Years!



This Has Enabled Sequencing of Both Human and Microbial Genomes

Healthcare Must Include a Vast Amount of Microbial Information That is Not in Today's Medicine

Your Body Has 10 Times As Many Microbe Cells As Human Cells



99% of Your DNA Genes Are in Microbe Cells Not Human Cells

Inclusion of the Microbiome Will Radically Change Medicine

J. Craig Venter™ INSTITUTE

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2012 Was
the Year of Human Microbiome



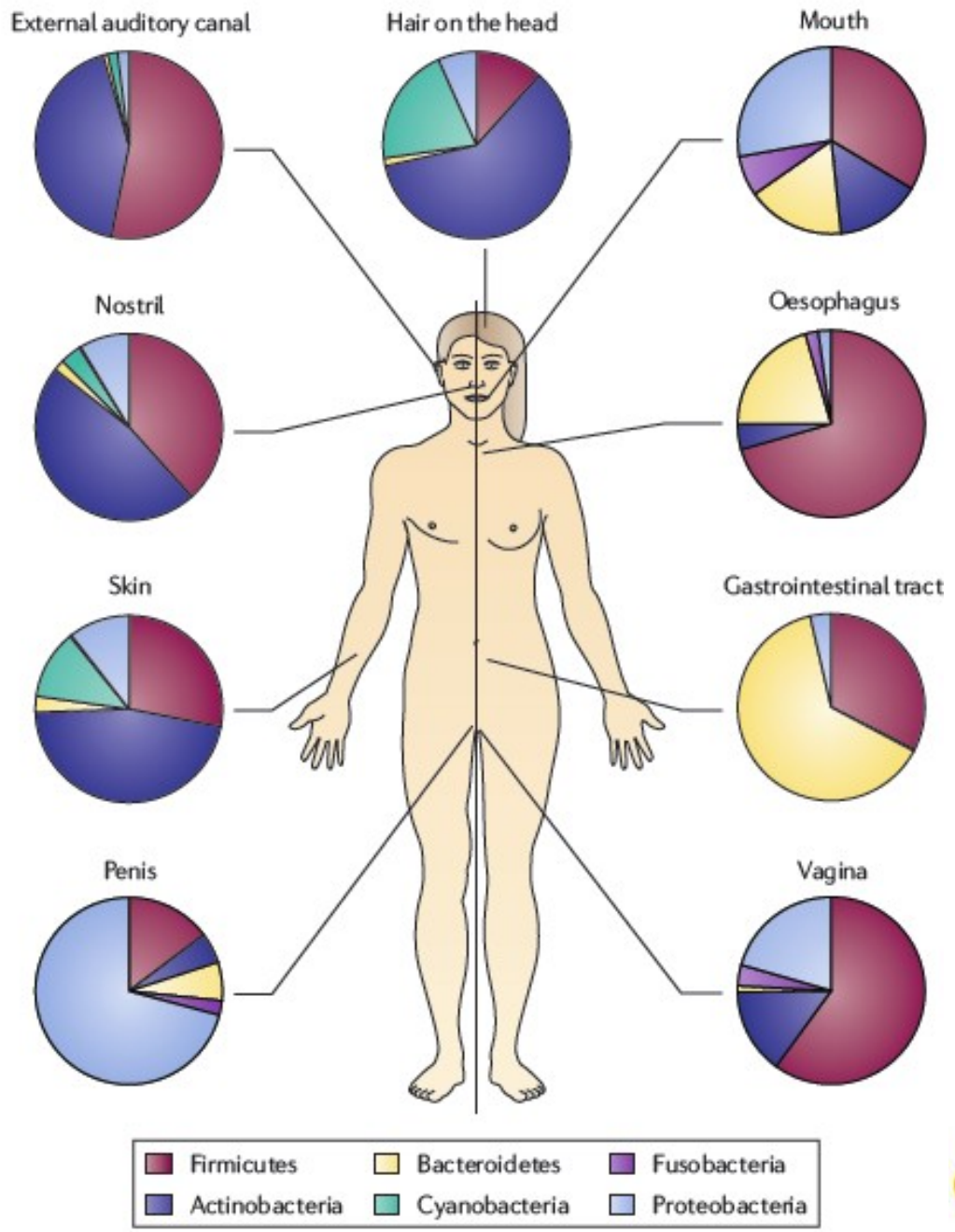


Quantifying Our Human Superorganism: Distribution of Microorganism Ecology on Our Bodies

Human Microbiome Project

The NIH Common Fund
WE ACCELERATE DISCOVERY.

Nature Reviews Microbiology
v.9, p. 279 (2011)



Inflammatory Bowel Disease Has a Radically Different Gut Microbiome Ecology Than Healthy State

