

Hack Your Health

Just Don't Die

Disclaimer

— [The opinions and views expressed in this talk are mine and mine alone. They do not reflect the opinions or views of my employer, their investors, or facilities.

— [We are going to talk about health. We are not going to talk about practicing medicine as that would be illegal. California's really strict on that so just remember that in no way am I telling you anything that could be construed as medical advice

Free Beer

— [Really. Volunteer?

— [Giveaway

— [Follow along:

— [<http://wikisend.com/download/504930/hack-your-health.pdf>

Meet Hu



— [Hu is my hero

— [His kidneys don't work

Hu Needed Dialysis

— [Ran out of money to pay for it at hospital

— [Hu thinks, why not build my own dialysis machine?

— [So he did

It worked

— [Hu built a dialysis machine at home, it worked

— [for **14 YEARS**

— [Hu is the hero of hacking your health

— [Start simply but think of Hu

Think of your body like undergraduate python

— [A lot of spaghetti code was just mashed together again and again until it sort of worked

— [We've been in maintenance mode for a couple dozen millennia at least, things are marginally improved

— [Metabolism is like the main() loop

— [There is not yet a really great debugger, but we do have unit tests of a sort

REDRUM Unit Tests

YOUR

BLOOD

Gary Goodtime's Bloodwork

— [There are essentially two labs in the US. Quest Diagnostics & Lab Corp.

— [Labs can be a big profit center for certain providers. So you might be able to save some money.

— [Lab work drive 90% of routine visits

— [In almost all states you can order and receive your own lab work quickly and at reasonable cost

CMP & CBC & UA

— [The staple of routine visits

— [Comprehensive Metabolic Panel (CMP)

— [Complete Blood Count (CBC)

— [They provide a very limited view of your health but it's the best we've got.

How to order

— [Cheapest and easiest I've tried, they use Lab Corp:

— [www.healthtestingcenters.com

— [Lots of tests available, lots of testing centers

— [FASTING, "Basic Health Screen" \$90. A lot of docs will charge \$300-400 for same. Many docs will repeat unnecessarily.

— [USE FAKE INFORMATION, but remember it

The results

Health Testing Centers will NOT do anything if there is a problem found in your results.

Normal vs. Abnormal, reference range

Glucose = what you eat, BUN & Creatinine = kidneys, sodium & potassium & chloride = hydration and diet, CO2 = hormones, ALT & AST & GGT = liver, Calcium = everything, Billirubin = liver

The results continued

— [GGT can be called the Good Good Times test. Have a bender over the weekend? You can probably see it in your GGT, your liver is displeased.

— [WBC & *phils & *cytes= immune system, RBC & Hemo* & MCV = general wellness and blood health

— [LDL/HDL/Trig. = What you eat, i.e. cholesterol. Long term indicator of heart disease.

The results continued

— [CBC is in most senses a “mechanical” and physical review of what is in your blood.

— [UA = Your Pee and what’s in it. Ketones = “keto” diets, many indicators of infection, hydration

— [You can research in detail each individual test. The tests are a very limited window on your health but they are the best option going at the moment

Things you can do at home

Blood typing kit. It is a really good idea if you know your blood type and that of family.

Anti-A	Anti-B	Anti-D	Control
Name - Nombre - Navn <i>Monkey, Timmy</i>		Address - Dirección - Adresse <i>Think Geek HQ</i>	
Born - Nacimiento - Geboren - Fødselsdato <i>Friday 13, 1999</i>			
ABO <i>O</i>	Rhesus D <i>+</i>	Date - Fecha Datum - Dato <i>1/19/07</i>	Signature - Firma Unterschrift - Underskrift <i>[Signature]</i>
Lot No 06461 EXP 2008-11 D			

At home continued...

— [UA Dip, as much fun as can be had with a cup full of your pee



At home final

— [Blood Glucose. Major implications for diet, weight loss, general well being



USB Contour Hackable

— [Bayer 7393 Contour USB Blood Glucose Monitoring System

— [Access to raw data and settings, testing parameters

— [<https://github.com/CodeMonkeySteve/contour-glucose>

Imaging

— [The most expensive 10 minutes of your life

— [CAT/PET present cumulative radiation dangers that are just beginning to be recognized by health care

— [There is not currently anything that shows cumulative dangers from MRI

— [Upside, you can do some fun things with the high resolution 3D scan they just made.

3D Printing Yourself

— [Original volumetric files. DICOM/.DCM . Usually you have to go to the radiologist or imaging center rather than your doctor for the files.

— [Most states you have a legal right to the files, sometimes there is a fee.

— [The source system is called a PACS

— [Osirix is an open source DICOM viewer

3D Printing Pipeline

- Files can be several GB, lots of horsepower needed for complex meshes
- From Osirix export a "Surface Rendered Object"
- Open in Blender/Meshlab/Sketchup, clean and massage
- Export STL, Print

Misconceptions

— [Lets start with a metaphor. The night sky.



We don't know what we don't know

— [Medicine is still looking at night sky with human eyes



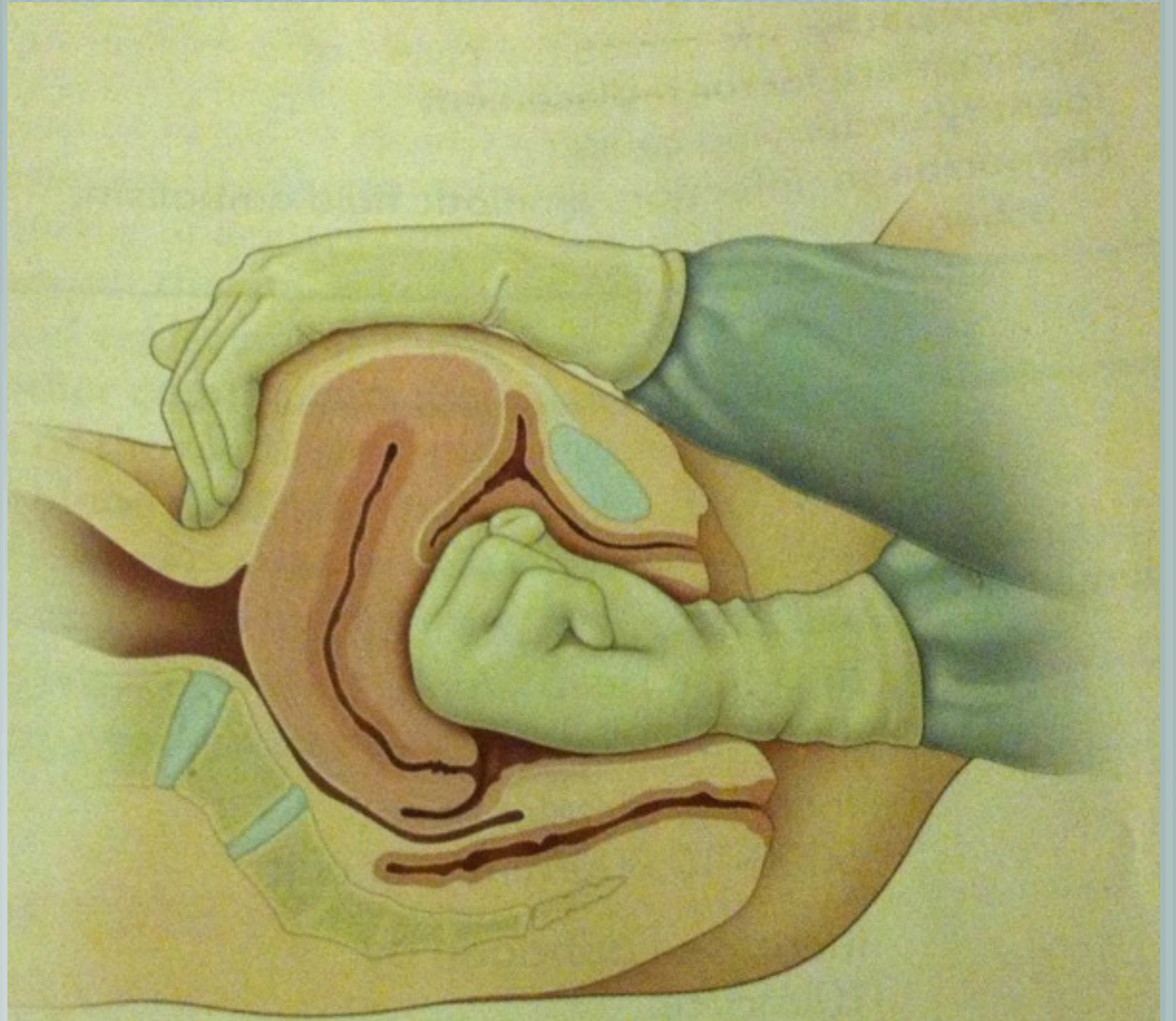
Waiting to zoom in

— [Everyone in healthcare needs a big slice of humble pie



What they teach in med school

— [Deep down or maybe not that deep, your doctor views you as a self-destructing bag of meat



Be the best patient you can be

— [Finding the right doctor is a lot like a first date. You should click in the first 5 minutes.

— [Medically speaking (outcomes) bedside manner doesn't necessarily mean that much

— [Be firm but tread lightly

— [Have your paperwork in order

This is your brain on drugs

— [The highest payoff thing you can do for your own safety is to know what drugs in what doses you are taking and to understand their potential side effects. Have a written list, give it to your doctor.

— [Speaking of side effects...

Side Effects in Detail

— [Propecia is for hair loss. Possible side effects: Erectile dysfunction and gynecomastia (MAN BOOBS)

— [Accutane is for acne. Possible side effects: crying spells, rectal bleeding and bone fractures.

— [Alli is for weight management. Possible side effects: oily spotting in your undergarments, loss of bowel control.

— [Requip is for “restless leg”. Possible side effects: an unusual urge to gamble or increased sexual urges and behaviors.

Don't be "that guy"

- Information you find on the internet is great but you probably don't have cancer even if Web MD says you do
- Stick to factual information about your actual symptoms. Listen, be patient but don't be afraid to confront your doctor and seek second opinions
- To a doctor with a scalpel every problem involves a surgery

Medicine is riddled with error

— [1 in 4 visits involves a medical error that can cause significant or greater harm to you

— [Be open to “wait and see”

— [Health care workers are just like regular office workers. Why were they late? It may have been a level 1 trauma or it may be that that needed to see the latest grumpy cat video.

Thanks and Don't Die

— [Talk available from:

— [<http://wikisend.com/download/504930/hack-your-health.pdf>