Causal Inferences: Facilitating Health Decisions in the Face of Uncertainty





Friday, May 17–Saturday, May 18, 2019 University of Colorado Boulder



# Welcome to our 10<sup>th</sup> Symposium

Each year my time gets shorter and shorter This year I "gave" myself only 15 minutes....which is more than enough time to say a few things about...

> The people who help us...financially and emotionally Why healthcare matters... What we are trying to do every year? What our path forward might be?





Peter Thompson



### Some Sponsor Attendees: They are Wearing Badges, so Please Thank Them...

#### SomaLogic:

Roy Smythe Matt Norkunas

#### Agilent:

Gigi Dellinger Brian Carothers Charles Packard Ben Lustad Ken Olinger

Adsero IP: Barry Swanson

**BioFrontiers Institute:** Tom Cech BOK Financial: Bob Gaddis

Cooley: Jim Linfield

Madryn: Avi Amin Peter Faroni

NES: Sadashi Mori Iwao Waga

University of Colorado Anschutz Medical Campus: Don Elliman John Reilly **Citywide Banks:** Adrianne Tracy

**Colorado BioScience Association:** Jennifer Jones Tracey Nilson

Individuals: Jim & Patience Linfield Jack & Jeannie Thompson



## Healthcare Matters: Our Friend Adam



Adam Rubenstein 1970-2019



# What We are Trying to Do Every Year

- Our idea was so simple, ten years ago: citizens can be wiser as we try to improve healthcare
- I congratulate and thank all of you for participating in a social experiment
- I hoped that you could grasp modern biology and help – politically, culturally, and scientifically
- We were determined to speak English (speakers beware!!!!!) during these symposia
- Quote from Anton Chekhov #1: "For God's sake, have some self-respect and do not run off at the mouth if your brain is out to lunch."



## What Might our Path Forward Be?

- Our speakers are increasingly concerned with social issues (and next year John Kabat-Zinn will be here to speak about living with *mindfulness*) – a small ping pong story...
- Personalized medicine must be peoplecentric – we all say at SomaLogic that "our real task is to democratize healthcare" – only *people* can be democratized
- Quote from Anton Chekhov #2: ...the human condition includes "a dislike of life strangely combined with a fear of death." [The Death of Ivan Ilyich...?]



## Mission Definition...

- We must make it possible for those of you who are "GLS lifers" to help
  - Thus far we have failed to do that
  - Please reach out to us with your biggest ideas about how to grab what we have – 500 friends, determined to help people live better, longer, happier... - and create a movement rather than just this wonderful weekend
  - We have made too strong a start to aim LOW...



## The Statistical Problem: *The Accidental Homo Sapiens* by Tattersall and DeSalle

- Imagine two Vikings of different genders landing on what we now call Iceland, versus ten billion people in the world in the near future (human evolution was tribal...)
- Two is different (genetically and behaviorally) from 10,000,000,000
- The Iceland population might have become different the next day...mutations among the offspring of founders have a chance to flourish
- That is not true for the world today...we are stable, genetically and behaviorally...



## Sweeping Cultural Movement has Replaced Darwinian Selection

- Authoritarian leaders are possible because...
- The bell-shaped curve for any trait in a huge population is stable: Human pattern recognition and sociology are the new drivers
- False conclusions will be our problem MAGA; we seize the possibilities for change
- *"Causal Inferences: Facilitating Health Decisions in the Face of Uncertainty"…we confuse correlation with causation <u>as a piece of pattern recognition</u>*



## **Correlation is NOT Causation (from Nebojsa**



Thoughts of causation are so tempting!

# So Here We Go...Again...

I looked at this GLS lineup with great pleasure...

14 incredible scientists/biologists7 incredible social thinkers

The total is more than our 16 speakers – some people serve two roles

And our moderators are also amazing, as are the attendees

This is a celebratory anniversary party – thanks again

