

Evidence-Based Medicine

Is EBM just a pack of lies, damned lies, and statistics?

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**Oregon Rural Heart
Attack Care Project**

Webinar

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What the Experts Say About This Webinar

- The long-range contribution of statistics depends not so much upon getting a lot of highly trained statisticians into ~~industry~~ **medicine** as it does in creating a statistically minded generation of ~~physicists, chemists, engineers, and others~~ **clinicians** who will in any way have a hand in ~~developing and directing~~ **caring** for the ~~production~~ **patients** of tomorrow.

Shewhart & Deming

- **There are three kinds of lies:
lies, damned lies, and statistics.**

Mark Twain

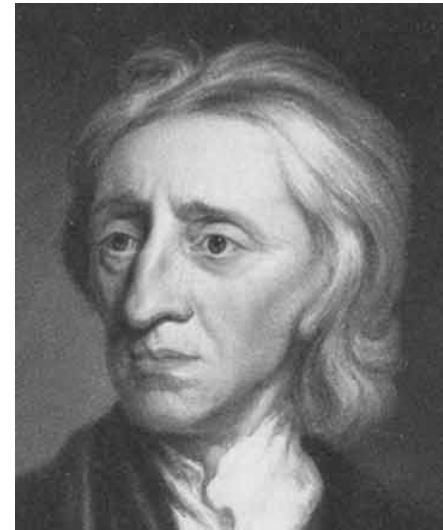
Agenda

- How We Got Here
- Evidence-Based Medicine – What?
- How to Avoid EBM 😊
- Statistics – A Mercifully Brief Review
- Bias in Research
- RCTs to Evaluate QI? – Not so fast!
- Discussion

The Age of Enlightenment

- Scientific Method
 - John Locke (17th century)

- Positivism
 - Auguste Comte (19th century)



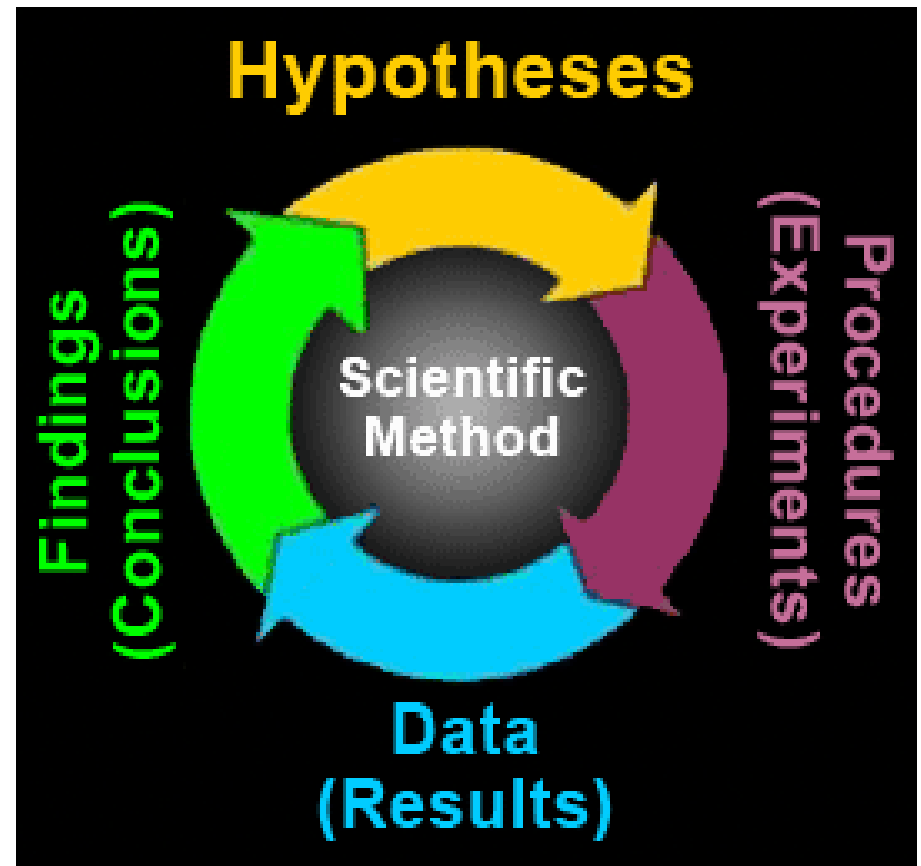
Empiricism



Source: <http://iws.ccccd.edu/mbailey/ethics%20in%20a%20nutshell%20with%20cartoons.htm>

Scientific Method

1. Use your experience
2. Think up an explanation
3. Predict an outcome
4. Test your idea

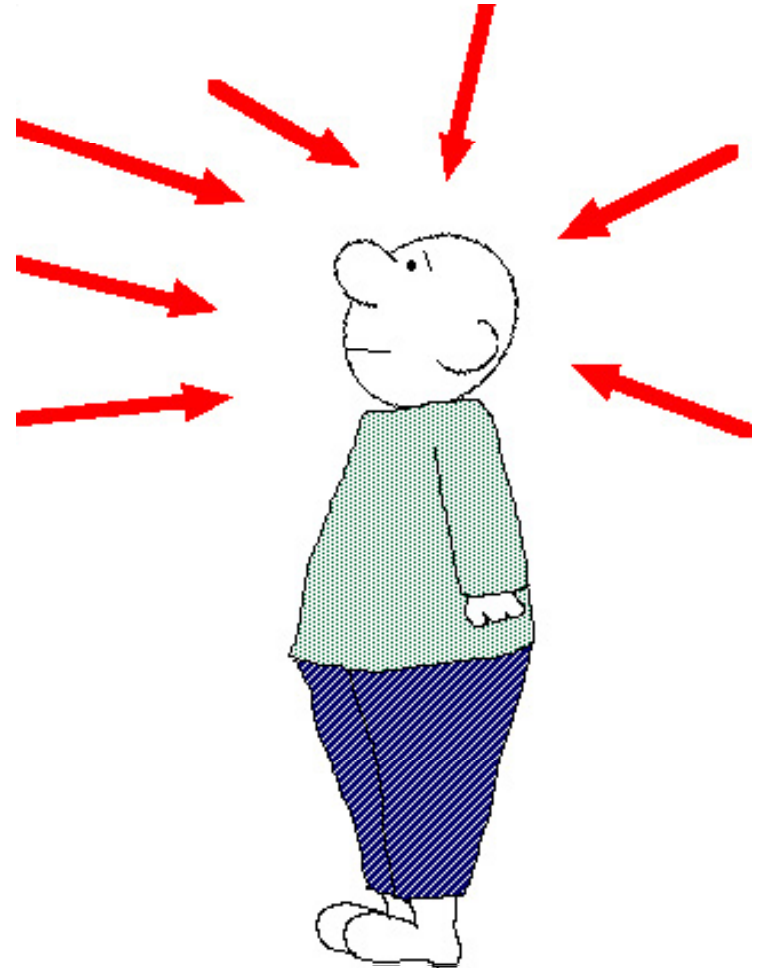


PDSA = Scientific Method



Does Empiricism = EBM?

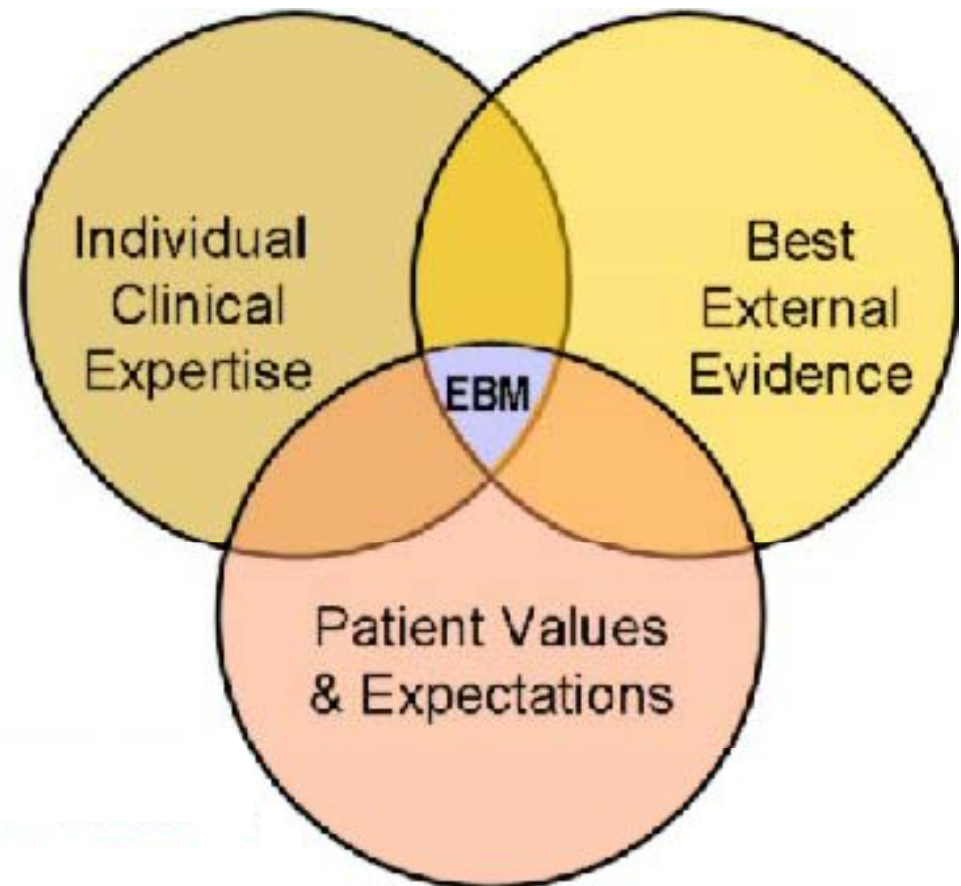
- Empiricism
 - Knowledge through the senses, not inherited
 - Experimental or Experiential?
 - Dual etymology
- Evidence-Based Medicine
 - Both! And more.



EBM Definition

- EBM is a conscientious, explicit, and judicious use of the current best evidence in making decisions about the care of individual patients.
- The practice of EBM integrates individual clinical expertise, best external evidence, and patient values and expectations.

David Sackett, et al



Note: The term “Evidence-Based Medicine” is attributed to McMaster University epidemiologists in the early 1990s

EBM Definition

Not “cook-book” medicine

Not “cost-cutting” healthcare

Not just randomized trials

Why EBM

- We can't keep up with the literature
- Clinical questions during 3.2/10 encounters
- We often rely on low-quality information
- "Standards" often become myths
- We often practice anecdotally



Sources: White, B. Making Evidence-Based Medicine Doable in Everyday Practice. *FPM*. Vol. 11. February 2004.
Davidoff, et al. Evidence-Based Medicine; A New Journal. *BMJ*. Vol. 310. 1995.

How to Avoid EBM 😊

(or understanding the way *some* docs think)

Levels of Belief

Good



Class 0 – Things I believe

Class 0a – Things I believe despite the available data

Class 1 – Randomized controlled clinical trials that agree with what I believe

Class 2 – Other prospectively collected data

Class 3 – Expert opinion

Class 4 – Randomized controlled clinical trials that don't agree with what I believe

Bad

Class 5 – What you believe that I don't

Source: Shaughnessy and Slawson. Easy Ways to Resist Change. *BMJ*. Vol. 329. December 2004.

How to Avoid EBM 😊

(or understanding the way *some* docs think)

1. Don't pay attention
2. Attack the data
3. Maintain absolute confidence
4. Follow the pack
5. Defer to the expert
6. Bring in the lawyers
7. Blame patients
8. Show how much you've change
9. Pull rank
10. Simply refuse



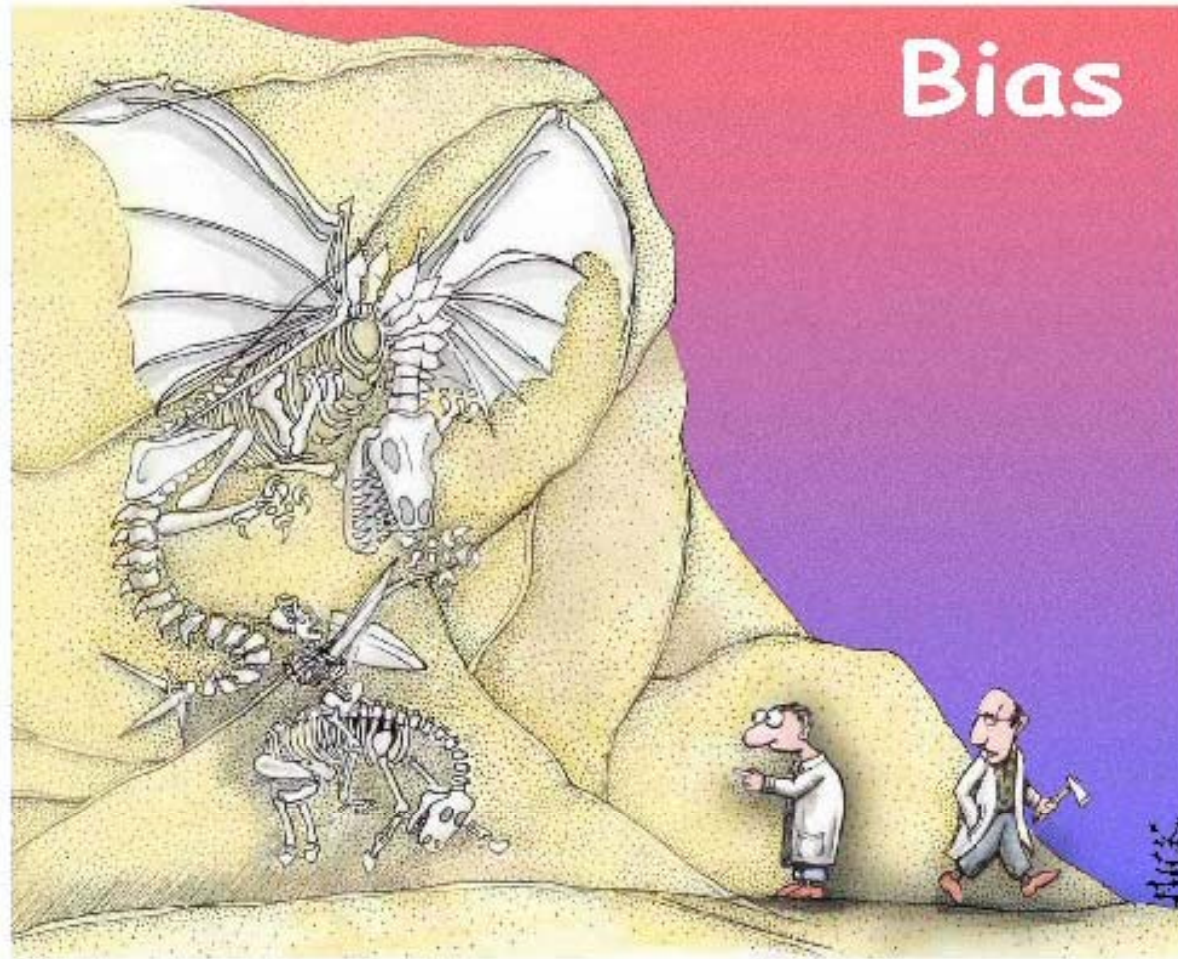
Source: Shaughnessy and Slawson. Easy Ways to Resist Change. *BMJ*. Vol. 329. December 2004.

The Most Basic of Statistics

- Validity – accurate
- Reliability – repeatable
- P-Value
 - Not as good as we think!
- Number Needed to Treat
- Number Needed to Harm



Empiricism or Bias?



Ignore it Jeffries. It's unscientific.

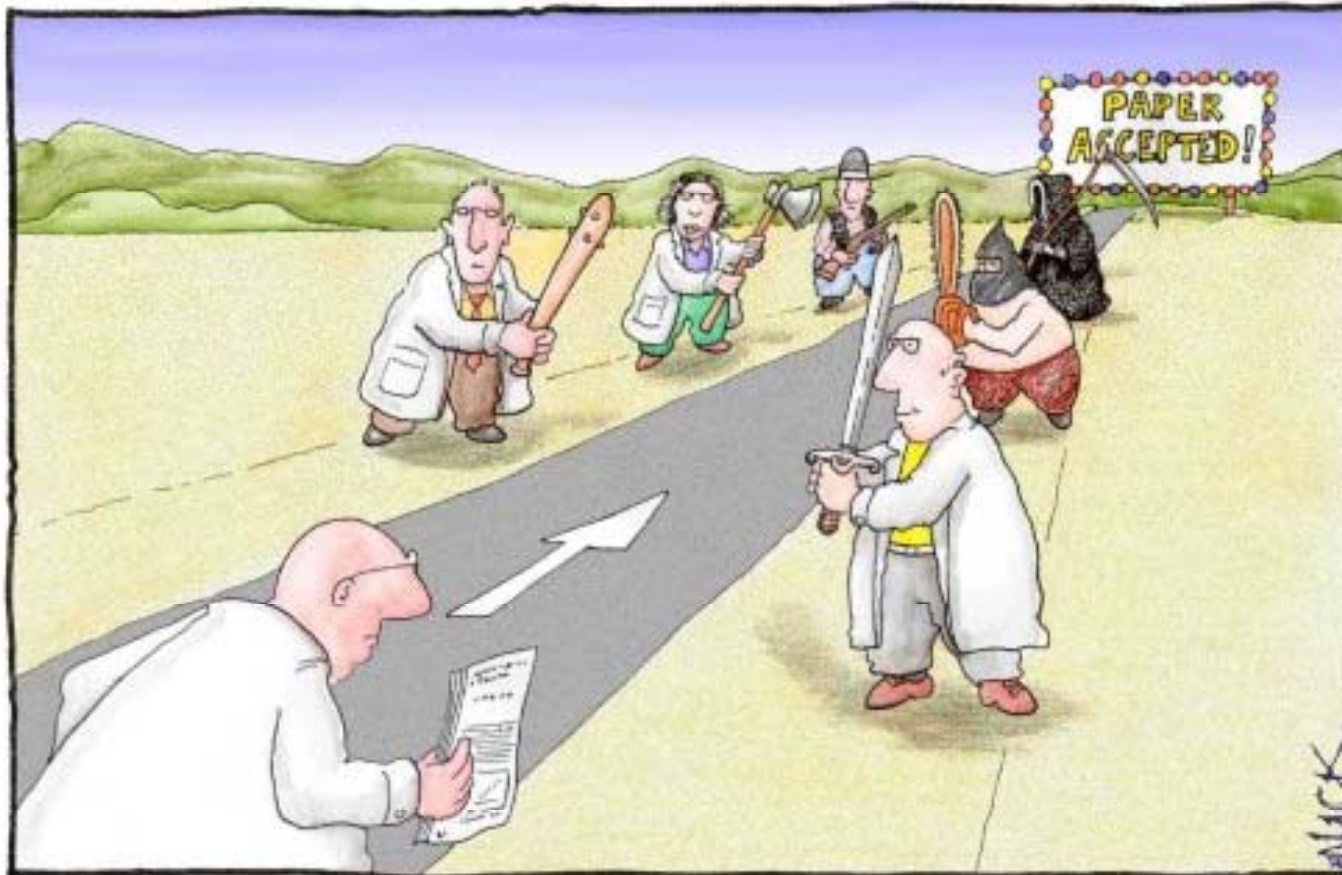
Source:
www.sgha.net

Bias in Research (when EBM ain't EBM)

- Confounding
- Selection / Exclusion
- Relative v. Absolute Risks
- Data Dredging
- Disease Oriented Evidence
- Publication



A Better Check on Bias?



Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

Source:
www.community.acs.org

Don't Believe Everything You Read

Question:

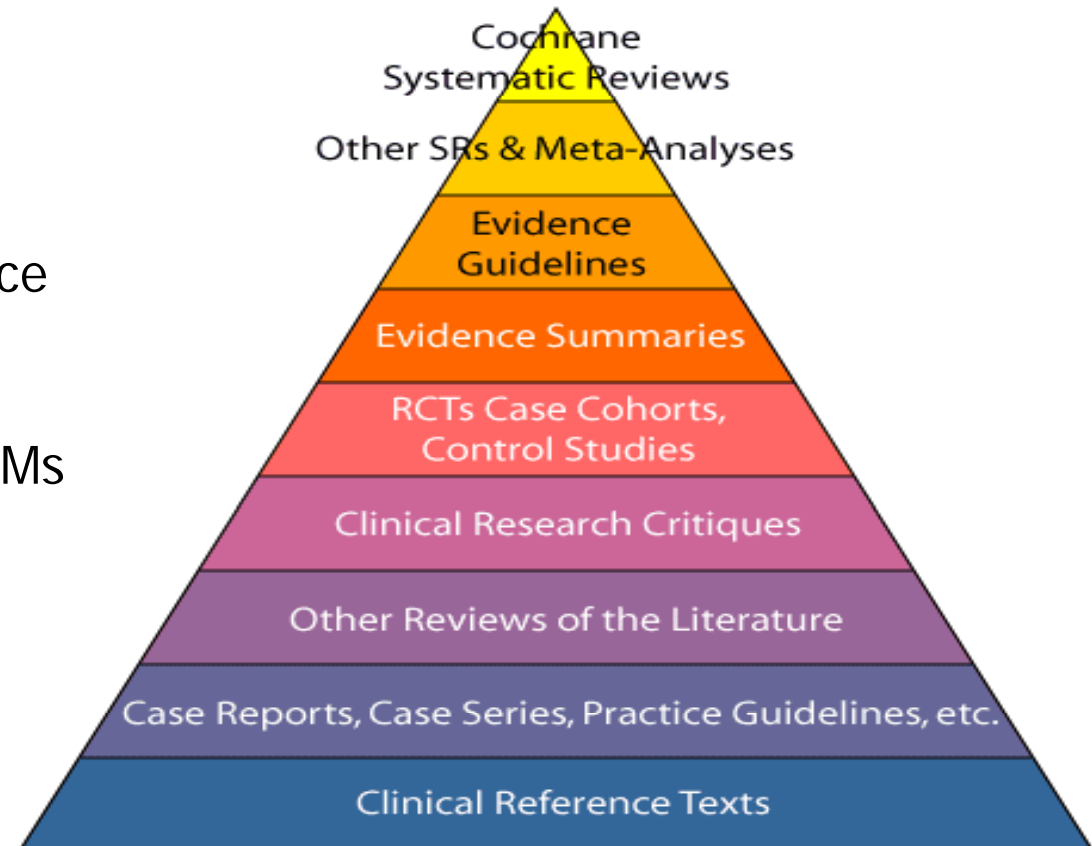
- Problem
- Patient Population
- Intervention
- Comparison
- Outcomes
- Number
- Statistics



Source: White, B. Making Evidence-Based Medicine Doable in Everyday Practice. *FPM*. Vol. 11. February 2004.

EBM Resources

1. Cochrane Collaboration
 - www.cochrane.org
2. The Journal of Family Practice
 - www.jfponline.org
3. InfoRetriever and Daily POEMs
 - www.infopoems.com
4. Primary Care Abstracts
 - <http://ccme.org/PCMA>

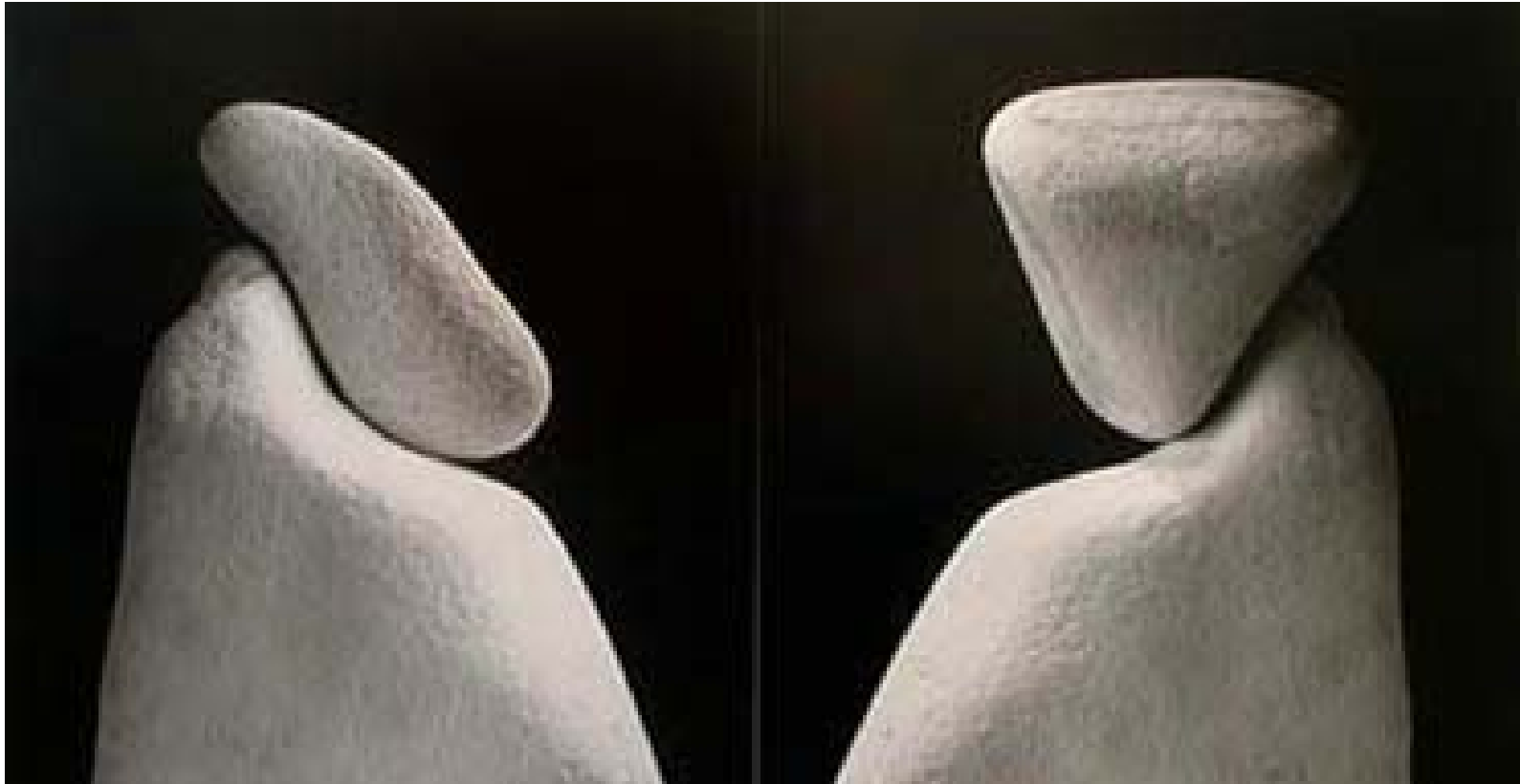


When an RCT Doesn't Work

- When you can't control bias!
- Such as:
 - Complex social environments
 - Chaotic situations
 - Hospitals?
 - QI Projects?
- **Try making your marriage better with a randomized controlled trial!**



Discussion



Thank You

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