Medical Nihilism

We ought to have little confidence in the effectiveness of novel medical interventions

Jacob Stegenga   (+ my brother!)

LANCET EDITOR:

Afflicted by studies with poor sample sizes, tiny effects, invalid exploratory analyses, and flagrant conflicts of interest, together with an obsession for pursuing fashionable trends of dubious importance; science has taken a turn towards darkness.

WHY MEDICAL NIHILISM? OUTLINE

H : hypothesis that drug is effective

(1) highly potent → (2) highly specific

E : publicly available evidence concerning H

BAYES' RULE

$$p(H|E) = \frac{p(E|H) \cdot p(H)}{p(E)}$$

$p(E|H)$ LOW

* small effect sizes

$p(H)$ low

* few magic bullets

$p(E)$ high

* biased research

NOW GO THROUGH EACH OF THESE

$p(E)$ HIGH

- SUBJECTS ARE BIASED

  → Pre-screen participants! (Run in period)

  Where people are chosen to take part in trials based
  on some preferably criteria

- p-hacking

  Checking to see if any of 20 hypotheses are supported by
  the data (i.e. < 1/20 chance of beyond produced by random)
  Bound to find some result!

- publication bias

  Only publish the successes!
  You have to pass 2 clinical trials, but you can fail and
  not report as many as you want.

- Tools are biased

  → HAMD

  Depression questionnaire, need a drug to raise your
  HAMD score by ~10 points to be significant.

You can gain points just by admitting you are depressed,

i.e. a drug that makes you feel so bad you admit you are

depressed has made significant progress no being approved!

$p(E|H)$ low

Small effect sizes!

- Antidepressants $\Rightarrow$ HAMD $\downarrow$ 1.8

- Tamoxifen for breast cancer $\Rightarrow$ 2.8% reduction over 10 years
  ↳ serious intervention!

- Methylphenidate for ADHD $\Rightarrow$ no patient benefits

- Statins $\Rightarrow$ 1.2% lower mortality over 5 years

- Alendronate $\Rightarrow$ 1 $\downarrow$% hip breaches over 5 years

- Oseltamivir $\Rightarrow$ flu $\downarrow$ from 7 to 6.3 days

- Cancer Mortality $\downarrow$ 5% 1950-2005

Compare that to truly revolutionary treatments

/ INSULIN:
   Coma patients come up!!

Miracle cures (Magic bullets) are unlikely

↱ Complex diseases
↳ Complex system

Drugs that short-term make money
are unlikely to overcome these.

Some places: → antibiotics, scurvy, childhood cancers
are okay → maybe genetic stuff

SIMPLER DISEASES ?

∴ MEDICAL NIHILISM

Next?

He advocates non-intervention in complex non-magic bullet cases.

Drug companies aren't the best system, morph agenda

- Me too drugs not optimal developments

Drug companies are incentivised to copy other profitable drugs, rather than develop new approaches.

- Not much evidence on the effect of not having many drugs!