Crisis or the norm?

- James Lind (1753)
  - *'Before this subject could be set in a clear and proper light, it was necessary to remove a great deal of rubbish'*
- Schor and Karten (1966)
  - *'In almost 73% of the reports…. Conclusions were drawn when the justification for these conclusions was invalid'*
- Doug Altman (1994)
  - *'huge sums of money are spent annually on research that is seriously flawed through the use of inappropriate designs, unrepresentative samples, small samples, incorrect methods of analysis and faulty interpretation'*

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Essay

Why Most Published Research Findings Are False

John P. A. Ioannidis

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2005 (13 years) and Cited 6431 times

Reproducibility means many different things and is complex
https://www.youtube.com/watch?v=fAeLMEmLIoE

Observations on – Ionnidis 1995

- Rethink funding amounts, partnership, collaborations
- Address the lack of power (and lack of thought about it)
- Methodological advance essential for some areas
- Some risks of overusing 'me too' – reproducibility (replication) necessary – how much
- But, there are fields where context is fundamental to meaningfulness and effect sizes small – should research not happen?
  Government investment crucial (but political drivers to decision making hold danger)
- Assessment processes – from COI to bias recognition in, and by, all
- Pressure on the individual researcher to get funding and publish does cause problems, and fraud
- There are risks to a 'simplistic' drive for impact (pathway to impact better?) which could exacerbate problems with reproducibility

For me – its about rethinking the issue(s)

1. Recognise the drivers that maintain a lack of motivation to change (Glasziou and Chalmers 2018)
   - Surprise and disbelief still seem to exist
   - Academic and commercial incentives reward the current system
2. Shift gaze from researcher behaviour and processes to the structures that underpin that (to get the outcomes we really want)
   - Just tweaking process inadequate (Donabedian 1965)
   - Tertiary system (employment), research funding, performance evaluations all key drivers
3. Language matters – shift from Reproducibility Crisis (leads to catastrophising or inertia)
   - Building Trust in Science
   - Continuous quality improvement

And finally

4. Do research on interventions to address the multiplicity of factors that contribute to research waste
   - Some things will work and are doable, some won't and may have negative consequences
5. Accept that what is true today will frequently be wrong in the future
   - Not that reproducibility is not an issue but knowledge does change
6. The long game - changing the culture is challenging, not welcomed by all, and each aspect contested (and contestable!)
   - Do "less research, better research, and do research for the right reason(s)" Doug Altman 1994