

We have a systemic problem - Our system tolerates (encourages?) Poor Quality Science

Between 2002-2012, Amgen was not able to reproduce seminal findings from 47 of 53 “top tier” publications
- the major finding was not reproduced.

Problems:

- lack of blinding
- selective data presentation (cherry picking)
- single experiments
- controls lacking
- illegitimate reagents
- inappropriate analyses (p-hacking, HARKing)

Not a “Reproducibility Crisis”, an “Innovation Opportunity”

Solutions:

Governments & Funding Agencies

- Require Licensing of Biomedical Scientists
- Make funding quality the priority, rather than a “top-tier” Journal
- Demand GIP (“Good Institutional Practice” or GIP) a requirement for funding

Institutions – Demonstrate GIP compliance

- Review of published papers e.g. Scientific “M&M”
- Compulsory, annual methods training for PIs, trainees
- Random reviews of lab note books
- Require Guideline compliance/data sharing
- More realistic/accurate/honest public statements

With real consequences

- **loss of lab space**
- **loss of trainees**
- **loss of grants**

Not a “Reproducibility Crisis”, an “Innovation Opportunity”

Solutions:

As scientists, we could

- Read papers before we cite them
- Refuse to cite papers of poor quality
- Refuse to accept the Journal as any surrogate for quality
i.e., promotion/grants/hiring/post-doc ‘success’
- Do things properly ourselves

Journals

- Blinding of reviews by Editors, Reviewers
- Pay reviewers
- Limit publications per scientist (e.g. 2 p.a.)

Consumers, Patient advocates, Press

- Demand quality research
i.e., experiments that are blinded; repeated; controlled;
use validated reagents; show all the data;
and with appropriate data analysis