



“Unconscious” misconduct and technology transfer

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Continuum of misconduct in research

- There are the big three (FFP)
 - Fabrication
 - Falsification
 - Plagiarism – estimated at 4%
- And then there are questionable practices...
 - Taking other people's ideas
 - Over-selling results
 - Inappropriate co-authorship – estimated at 31 to 37%
- Difficult to estimate prevalence
 - Analysis of reports or retractions do not estimate prevalence
 - Direct questions on involvement are subject to biases towards socially acceptable behaviours

See Roberts and St. John (2014)

Assuming researchers are honest...

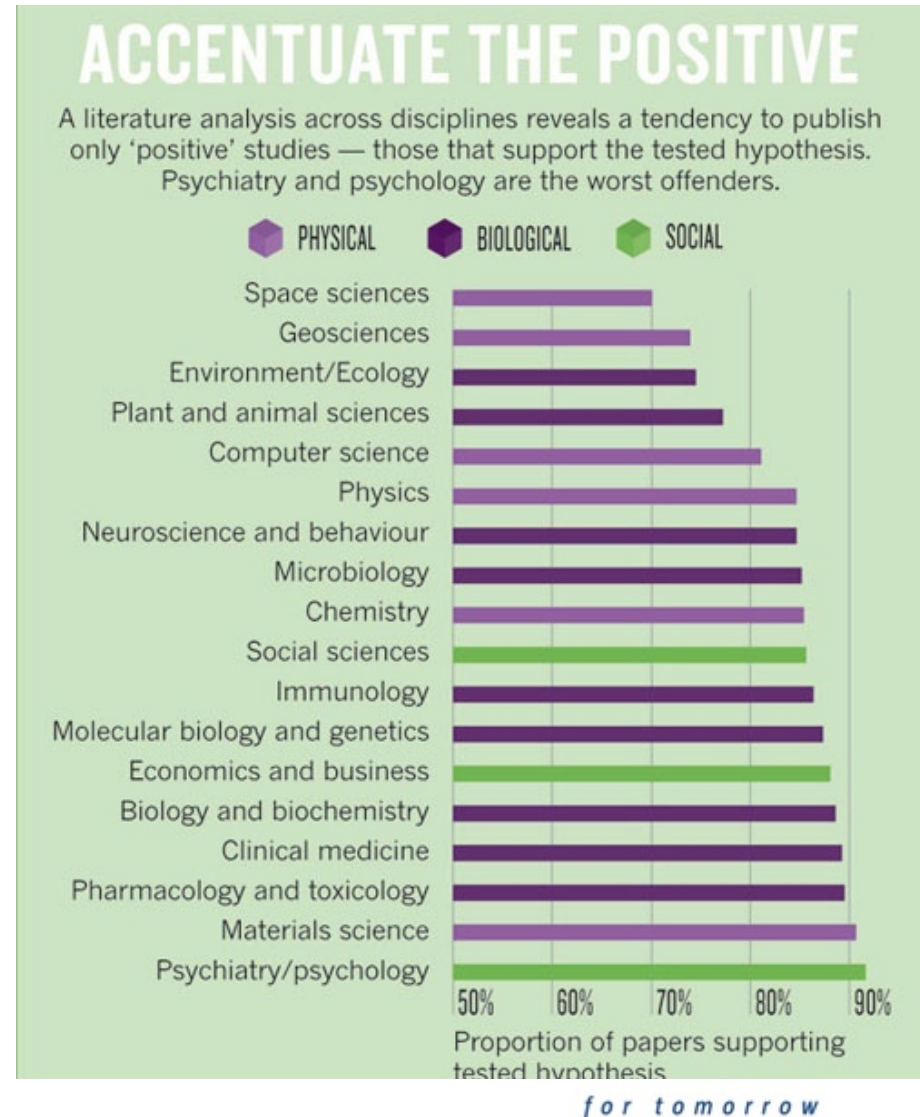
- Still major issues for technology transfer
- Questionable practices
 - Over-selling results
- As well as
 - Data selectivity and irreproducibility
 - Statistical errors

“Too many sloppy mistakes are creeping into scientific papers.”

Nature 483, 509 (29 March 2012)

Data selectivity and irreproducibility

- Only 6 of 53 landmark studies in preclinical oncology research were reproducible by Amgen (Begley, CG & Ellis, LM, 2012)
- In 4,600 studies across the sciences, the proportion of positive results rose by more than 22% between 1990 and 2007 (Fanelli, D, 2011)



- Too few data points
- Tests done on too few animals or people
- Incorrect statistical methods used
- Incorrect controls
- Using statistics for identical replicates and not independent data

“The incidence of papers in cell and molecular biology that have basic statistical mistakes is alarming.”

Vaux (2012)

Some solutions in TT process

- External review of data
 - Could include peer-reviewed publications (but this can be a problem)
 - Use of independent consultants or academics
- Independent statistical review
 - Pay particular attention to statistical significance for potential licensee
 - Are you asking the right questions?

*Need to formalise into the process so
not seen as a witch hunt*