What do we mean by research integrity?

• Research Integrity = Good Practice

• Reliability

• Honesty

• Respect

• Accountability
Bad practice

- European Code of Conduct for Research Integrity

Research Misconduct:
- Fabrication
- Falsification
- Plagiarism
Bad practice

Lancet retracts Wakefield's MMR paper

BMJ 2010; 340 doi: 10.1136/bmj.c696 (Published 02 February 2010)
Cite this as: BMJ 2010;340:C696

Clare Dyer

The Lancet has retracted the 12 year old paper that sparked an international crisis of confidence in the safety of measles, mumps, and rubella (MMR) vaccine when its lead author suggested a link between the vaccine and autism. Andrew Wakefield was found guilty by the General Medical Council last week of dishonesty and flouting ethics protocols.

The UK regulator held that Dr Wakefield abused his position, subjected children to intrusive procedures such as stool tests, and published false information based on research with few controls.

Red-Wine Researcher Implicated in Data Misconduct Case

An investigation has found a UConn lab chief guilty of falsifying data. He denies the allegations.

By Owen Callaway, Nature magazine on January 12, 2012
Poor research practices

• HARKing – Hypothesising after the results are known

• P-Hacking – Results are manipulated to show statistical significance

• Outcome switching – Certain results are not reported and some may be highlighted
Retraction Watch

- Retractions were not announced
- Reasons were not made public
- Decisions may then be made based on invalid results

Blog started in 2010 ‘Wonder if we’ll have enough material’
By October 2023 nearly 47,500 entries

376 retractions on COVID papers
97% of people asked state that they want to see the data

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>97%</td>
<td>It is important that COVID-19 data is openly available for people to check</td>
</tr>
<tr>
<td>67%</td>
<td>All Covid-19 related research and data should be made open for anyone to use freely</td>
</tr>
<tr>
<td>64%</td>
<td>Now more likely to listen expert advice from qualified scientists and researchers</td>
</tr>
<tr>
<td>63%</td>
<td>A government data strategy would have helped in the fight against COVID-19</td>
</tr>
<tr>
<td>29%</td>
<td>Restricting the public’s right to information is a necessary emergency measure</td>
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Guardian graphic | Source: Survation poll for the Open Knowledge Foundation. Base: 1,006 Respondents, 1 May 2020
Academic pressures and consequences

<table>
<thead>
<tr>
<th>Strongly positive perceived impact:</th>
<th>Positive and negative perceived impact:</th>
<th>Strongly negative perceived impact:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data sharing policies and requirements</td>
<td>Media coverage and public perception of research</td>
<td>Incidents of bullying and harassment</td>
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<td>Open access publishing</td>
<td>Research leadership and management</td>
<td>Use of journal impact factor (JIF), h-index and other metrics</td>
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<tr>
<td>Interdisciplinary research</td>
<td>How funding for specific projects is awarded</td>
<td>League tables of institutions</td>
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<td>Professional development and training opportunities</td>
<td>How researchers are assessed for promotion during their careers</td>
<td>Institutional workload models</td>
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*Source: Research Integrity: a landscape study, June 2020. Vitae, UKRIO and UKRN, on behalf of UKRI*
Barriers

• Time – It takes time
• Not currently part of the promotions process
• May require additional skills
• Your work may be critiqued
“More than 70% of researchers have tried and failed to reproduce another scientists experiments, and more than half have failed to reproduce their own experiments”—Baker, Nature 2016
Pre-registration

- Deposit your study design in a repository
- Submit a pre-registration/registered report to a journal
- Helps fight biases and HARKing
- Creates a more complete scientific record
Open Data

• After publication share Data
  Metadata
  Code
  Materials

• Share in a repository (OSF, Zenodo, Figshare)

• Link to your datasets to your institutional repository - PURE
Publish Data – Where?

<table>
<thead>
<tr>
<th>Journal service for supplementary material</th>
<th>Institutional data repository</th>
<th>Generic repository</th>
<th>Disciplinary repository</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meet publisher requirements</td>
<td>Accept various types of data, ensure long-term access</td>
<td>Reach a wider audience.</td>
<td>Offers expertise and experience in data management</td>
</tr>
<tr>
<td>Data available from published results</td>
<td>More reliable and there will be no costs</td>
<td>Accepts several types, suitable for interdisciplinary data</td>
<td>Likely to accept complete data sets</td>
</tr>
<tr>
<td>It can be costly and risky with data rights</td>
<td>May not offer long-term sustainable access</td>
<td>Usually only simple metadata is available</td>
<td>Selective in the type of data they accept</td>
</tr>
<tr>
<td>Closed and unlikely access to ensure preservation</td>
<td>May not have disciplinary metadata</td>
<td>No editorial control over the quality of deposited materials</td>
<td>Requires planning and high standards, may incur costs</td>
</tr>
</tbody>
</table>

Sharing Research Data, Pedro Principe, OpenAIRE 7/17/22
Open Access

Makes research available to readers at no cost as opposed to the traditional subscription or paywall model

Gold – Fully open access journals with fees/APCs covered by author or institution
Hybrid Journals allow open access on payment of APC

Green – A version (AAM) can be submitted to an institutional repository after an embargo period. Or make immediately available by retaining your rights

Diamond – no APCs, usually funded by other sources
Turing Way/Reproducibilitea

Explore the resources available

Welcome to ReproducibiliTea

We are a grassroots journal club initiative that helps researchers create local Open Science journal clubs at their universities to discuss diverse issues, papers and ideas about improving science, reproducibility and the Open Science movement. Started in early 2018 at the University of Oxford, ReproducibiliTea has now spread to 39 institutions in 25 different countries. We are completely volunteer run, and provide a unique and supportive community for our members, who are predominantly Early Career Researchers.

Want to join the movement? Just curious for now? Grab your cup of ReproducibiliTea and use our freely accessible and adaptable materials to get started today.

Welcome

Welcome to The Turing Way handbook to reproducible, ethical and collaborative data science.

The Turing Way project is open source, open collaboration, and community-driven. We involve and support a diverse community of contributors to make data science accessible, comprehensible and effective for everyone. Our goal is to provide all the information that researchers and data scientists in academia, industry and the public sector need to ensure that the projects they work on are easy to reproduce and reuse.
• PURE is our Institutional Repository for research outputs and research data
• Keep your PURE profile up to date as this populates the Public Research Portal
Thank you for listening

• Any Questions?

• Contact openresearch@abdn.ac.uk if we can help you in any way
Thank You