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# Research Integrity and Open science: Is sound science open science ?

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Open for you! An introduction series to open science | 20 June 2022



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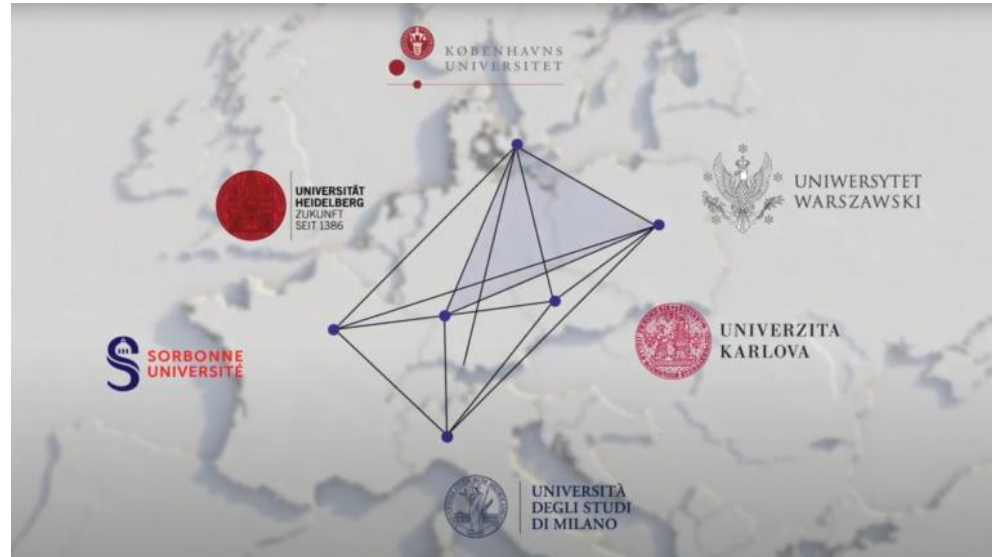
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## 4EU+ Alliance and Open Science

- 4EU+ is a transnational strategic university association.
- Aim: Strengthen the European vision of deepened cooperation and mutual enrichment in research and teaching
- Open Science is an integral part of this.
- Two 4EU+ projects currently work on Open Science.
- Open for you – an Introduction Series to Open Science“ – 14 session on OS topics!



# Agenda

- Research integrity: an introduction
- Research integrity and Open science
- Is sound science open science?

# Research integrity: what is it about?

- It is about research process and outcomes.
  - To be distinguished from codes of ethics and research ethics.
- Research conducted according to research integrity principles is just good, sound research.
- Sound research is *difficult*.
  - Beyond voluntary misconducts (Falsification of data, Fabrication of data, Plagiarism, and the grey zone), many risks of errors and bias.
- Cultures of research, involving institutions and all individual participants

# Institutions are not passive!

- Office of Research Integrity (USA), UK Research Integrity Office (<https://ukrio.org/>) and Concordat, Research Integrity Officers in Universities (European Network of Research Integrity Officers: <http://www.enrio.eu/>)
- Singapore Declaration (2010), Netherlands Code of Conduct for Research Integrity, 2018; The European Code of Conduct for Research Integrity (ALLEA, new version, 2017)
- Resources: <http://www.enrio.eu/resources/?cat=3>

# Major challenge: differences among disciplines

- The reproducibility challenge
- Plagiarism and all that: how do we see our relationships to data, bibliography, state of the art?
- There cannot be all-purpose recommendations—research integrity is a matter of how we interact with research material and peers on an everyday basis.

## Identification of risks: finding out the right attitude

- Risks usually occur when interactions (of all types) are difficult.
- We may not be aware of these difficulties.
- Vigilance and dialogue as major ingredients of risk avoiding.
- *Reflexive* open science practices are a useful tool, but no magic wand.

# Accessibility is a problem

Scientific publishing  
market



\$10 billion

Only **20% are**  
**open**





2 million articles




# Transparency is a problem

## The Lancet retraction

 Retraction—Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis

Mandeep R Mehra  • Frank Ruschitzka • Amit N Patel

Published: June 05, 2020 • DOI: [https://doi.org/10.1016/S0140-6736\(20\)31324-6](https://doi.org/10.1016/S0140-6736(20)31324-6) •  Check for updates

Reference

Article Info

Linked Articles

After publication of our *Lancet* Article,<sup>1</sup> several concerns were raised with respect to the veracity of the data and analyses conducted by Surgisphere Corporation and its founder and our co-author, Sapan Desai, in our publication. We launched an independent third-party peer review of Surgisphere with the consent of Sapan Desai to evaluate the origination of the database elements, to confirm the completeness of the database, and to replicate the analyses presented in the paper.

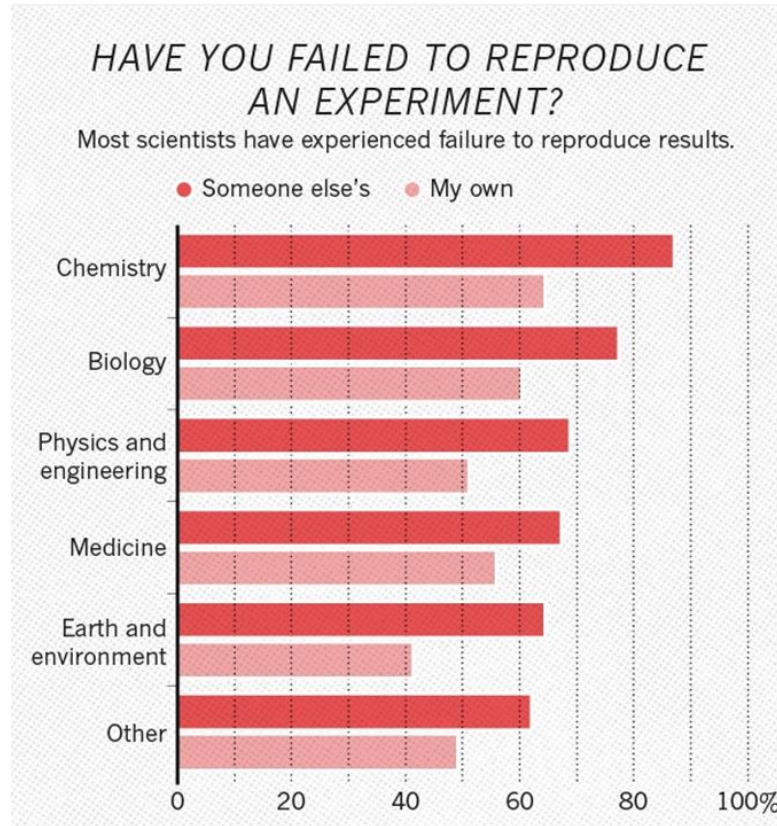
Our independent peer reviewers informed us that Surgisphere would not transfer the full dataset, client contracts, and the full ISO audit report to their servers for analysis as such transfer would violate client agreements and confidentiality requirements. As such, our reviewers were not able to conduct an independent and private peer review and therefore notified us of their withdrawal from the peer-review process.

• [View related content for this article](#)

We always aspire to perform our research in accordance with the highest ethical and professional guidelines. We can never forget the responsibility we have as researchers to scrupulously ensure that we rely on data sources that adhere to our high standards. Based on this development, we can no longer vouch for the veracity of the primary data sources. Due to this unfortunate development, the authors request that the paper be retracted.

# Reproducibility is a problem

Is there a  
reproducibility  
crisis in science?



<https://www-nature-com.pros.lib.unimi.it/news/1-500-scientists-lift-the-lid-on-reproducibility-1.19970>

# Science Fictions

How **FRAUD, BIAS,**  
**NEGLIGENCE,** and  
**HYPE** Undermine the  
Search for Truth

STUART RITCHIE

It is the peculiar and perpetual error of the human understanding to be more moved and excited by affirmatives than by negatives

Francis Bacon Novum organon (1620)



## Recall: a definition of open science

Open Science is the practice of science in such a way that others can **collaborate** and **contribute**, where research data, lab notes and other research processes are **freely available**, under terms that enable **reuse, redistribution and reproduction** of the research and its underlying data and methods

# Accessibility

# Transparency

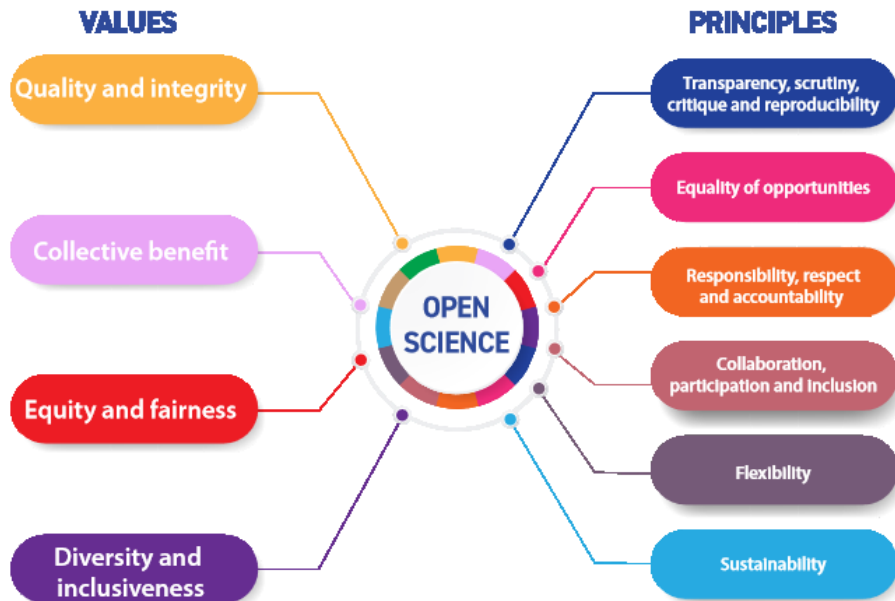
# Reproducibility



Components of Open Science

## Open Science fosters research integrity and trust

- FAIR principles enhance integrity
- Open Science for more accessibility and transparency
- Data sharing favors reproducibility



*'Building on the essential principles of academic freedom, research integrity and scientific excellence, open science sets a new paradigm that integrates into the scientific enterprise practices for reproducibility, transparency, sharing and collaboration resulting from the increased opening of scientific contents, tools and processes'*  
(Definition of open science)



## Is Open Science a condition for quality?

- Openness does not guarantee quality
- Openness is not relevant for all disciplines
- Some research outputs can be closed and efficient

## Does Open Science guarantee full integrity?



## What about research assessment?

- Publish or perish
- Impact factor vs quality
- Concurrence

## **Towards new research assessment principles**

From San Francisco (DORA)  
to Hong Kong (Principes)

## What is DORA?

The Declaration on Research Assessment (DORA) recognizes the need to improve the ways in which researchers and the outputs of scholarly research are evaluated.

Let's change  
what we value  
in research.



Sign  
**DORA**

## The Hong Kong Principles for Assessing Researchers: Fostering Research Integrity (2019)

1. Assess researchers on **responsible practices** from conception to delivery, including the development of the research idea, research design, methodology, execution and effective dissemination.
2. Value the accurate and **transparent reporting of all research, regardless of the results.**
3. Value **the practices of open science** (open research) - such as open methods, materials and data.
4. Value a broad range of research and scholarship, such as **replication**, innovation, translation, synthesis, and meta-research.
5. Value a range of other contributions to responsible research and scholarly activity, such as peer review for grants and publications, mentoring, outreach, and knowledge exchange.

## How can we reach integrity and openness?

- Cultural change
  - Slow science
  - Negative results

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