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Ethic and Integrity

Jean-Dominique Polack (UPMC)

Sources:

- P. Corvol, *Bilan et propositions de mise en œuvre de la charte nationale d'intégrité scientifique*
report to Thierry Mandon, 29 June 2016
 - conference at Sorbonne University, 21 Sept. 2017
- Doctoral Candidates Welcoming Days, Sorbonne University
 - 22 Nov. 2016 : presentation by A. Barberousse and myself
 - 16 Nov. 2015 2015 : presentation by M. Hadchouel, INSERM
- LERU, Research Integrity Forum, Oxford, Oct. 2012
 - presentations by N. Steneck, Univ. Michigan

Research ethic & integrity

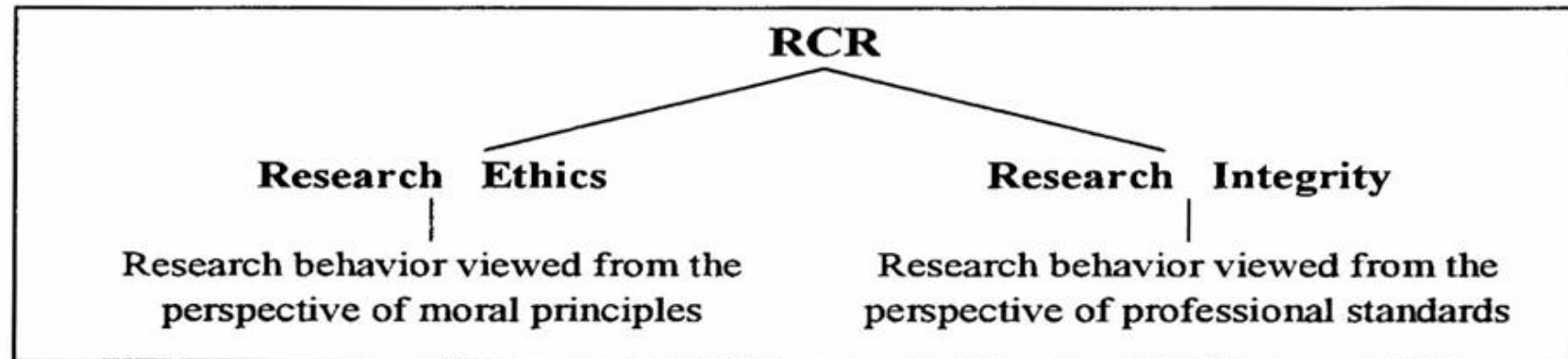
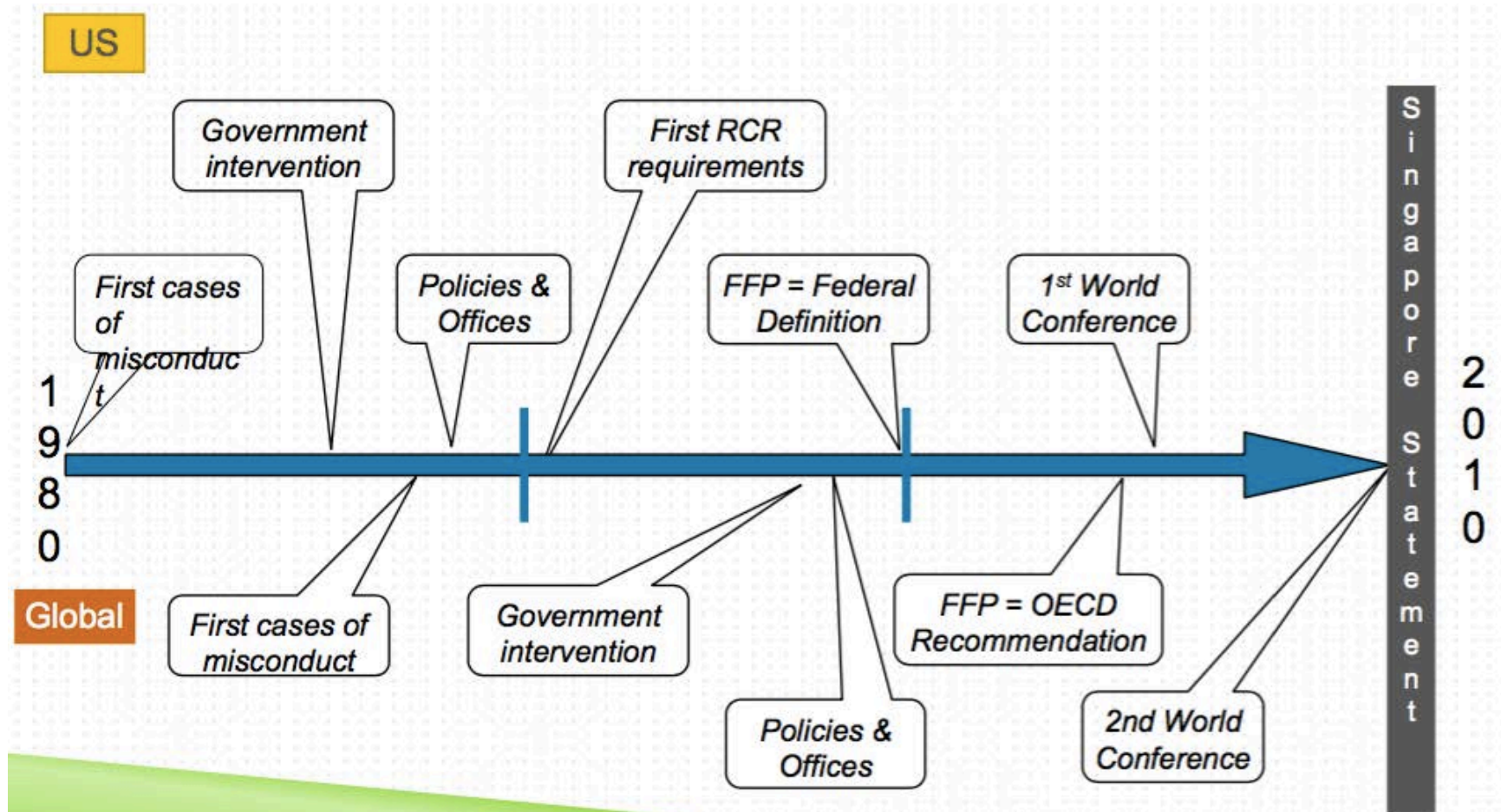


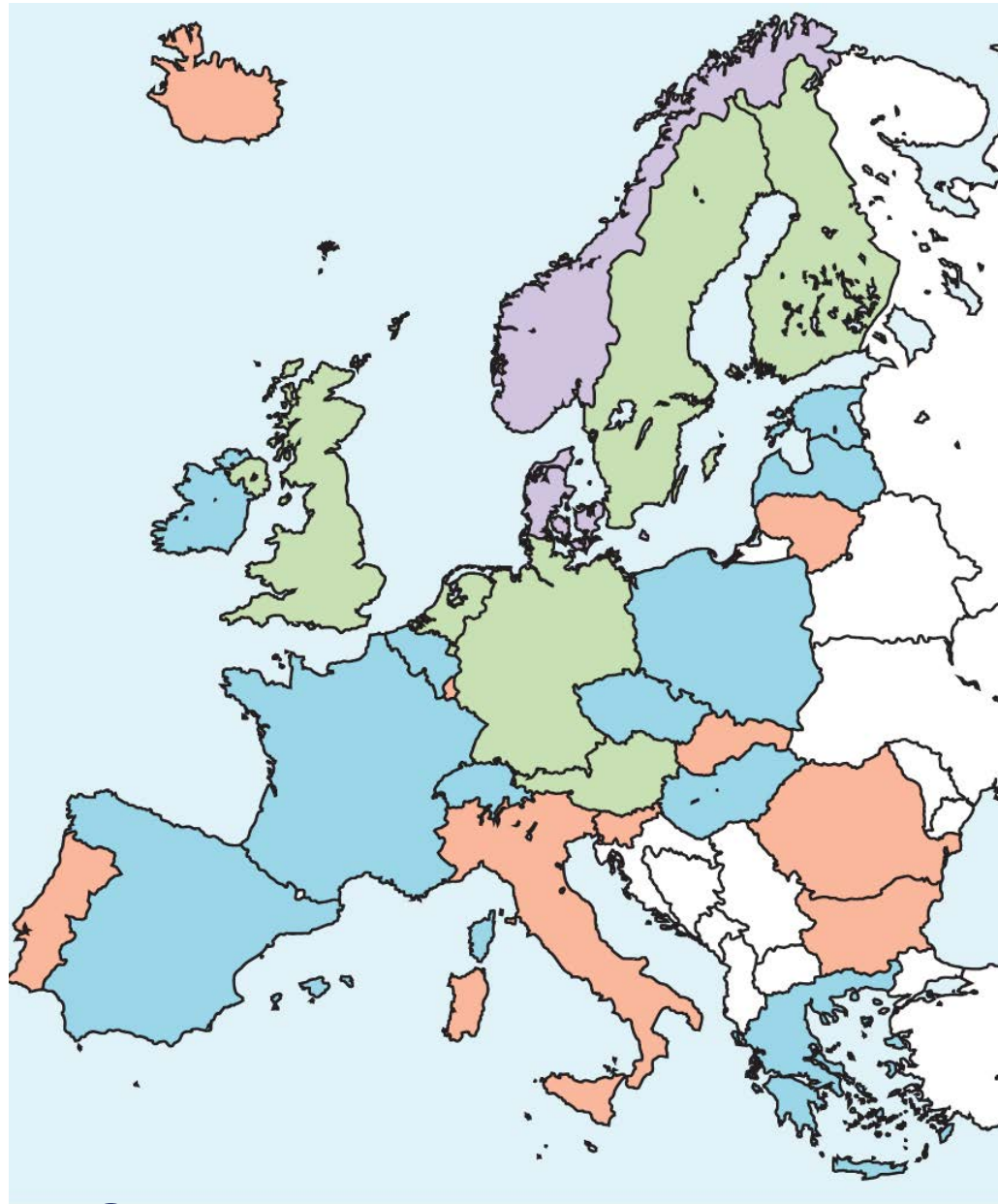
Fig. 2. Research ethics vs. research integrity

Nicholas H. Steneck (2006) *Science and Engineering Ethics* 12, 53-74

Global Response



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**Guidance on research integrity:
no union in Europe**

- Law on research integrity**
- National text**
- No national text
but institutional texts**
- No text**

*S Godecharle, B Nemery, *K Dierickx*
The lancet Vol 381 March 30, 2013

Research Integrity in Europe - Structures

(after E. Pasco-Viel, DGRI-DGESIP)

Country	Structure (name)	Statute	Role and missions	Nature of texts	
Denmark Norway	Committee, Adv Board	Independent organ	Case investigations	Law	Judge + acad.
Germany	Ombudsman	DFG	<i>id</i>	Best Practice guide	
Switzerland	Commission for RI	Academy of Sciences	Support & follow-up	Instit. texts	
United Kingdom	UK RIO	Charity (Assoc)	Advices	Instit. texts	
Netherlands	National Board for RI	Academy, Univ & NWO	Opinions on cases	Procedure rules	Member Fond.

Problem: Definition

- ▶ US definition has narrowed over time:
 - ✦ Initially recognized and discussed as “fraud”
 - ✦ Narrowed to fabrication, falsification, plagiarism (FFP) and other practices that seriously deviation from the normal practice of science
 - ✦ Further narrowed to FFP that seriously deviates from the normal practice of science
 - ✦ Institutional policies add other elements
- ▶ Evaluation:
 - ✦ Advantage: Focuses action on most serious cases
 - ✦ Weakness: Ignores wide range of misbehavior that negatively impacts research
- ▶ Future of definition in flux

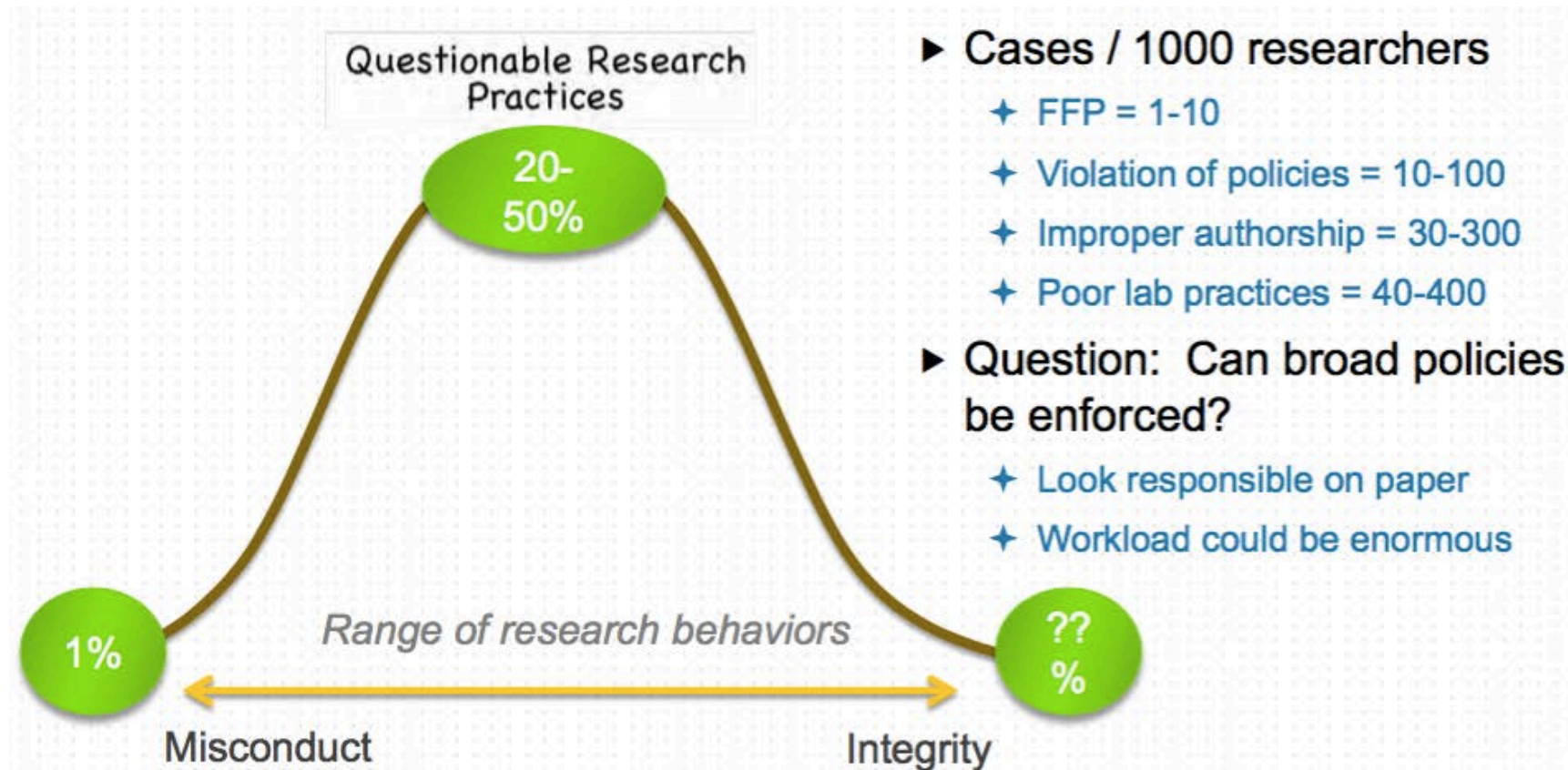
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Definition are changing

- ▶ Canada & Australia adopting a different approach
 - ✦ Describe best practice
 - ✦ Define misconduct as a breach of best practice
 - Serious cases must be reported to funding agencies
 - Lesser misconduct handled by institutions
 - ✦ Enforce through —“memorandum of understanding”
- ▶ Public discussion returning to use of the term fraud

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Practical implications



► Cases / 1000 researchers

- ✦ FFP = 1-10
- ✦ Violation of policies = 10-100
- ✦ Improper authorship = 30-300
- ✦ Poor lab practices = 40-400

► Question: Can broad policies be enforced?

- ✦ Look responsible on paper
- ✦ Workload could be enormous

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Is it a lesson in morality?

Is it a talk about law?

- ▷ No
- ▷ It's more about “what should be done” (and what should **not** be done) during your life time as researcher.
- ▷ It's about your job, what is expected from you, what is forbidden, why it is important.
- ▷ Goal: Your realization that **you** are accountable for:
 - ▷ your publications
 - ▷ your data,
- ▷ As **supervisors**, you should help your doctoral candidates, by:
 - ▷ viewing deontology of research as a serious matter
 - ▷ answering their questions
 - ▷ fostering mediation when needed

About what?

- ▷ About misconducts.
- ▷ Two categories:
 - ▷ FFP: Fraud, Falsification of data, Plagiarism
 - ▷ Data retention and conflict of interest may be added to the more serious category.
 - ▷ QRP: Questionable Research Practices
 - ▷ Data selection or omission, scattering of publications, bad statistics, biased selection of quotes, data destruction (or non-storage), auto-plagiarism, neglecting informed consent
 - ▷ Discrimination, harassment

Reminder: French law

- ▷ « Tout usage d'une oeuvre sans autorisation de son auteur ou de son éditeur constitue le délit de contrefaçon sanctionné par les dispositions de l'article L. 335-2 du Code de la propriété intellectuelle ».
- ▷ « Toute autorité constituée, tout officier public ou fonctionnaire qui, dans l'exercice de ses fonctions, acquiert la connaissance d'un crime ou d'un délit est tenu d'en donner avis sans délai au procureur de la République et de transmettre à ce magistrat tous les renseignements, procès-verbaux et actes qui y sont relatifs » (article 40 du Code de procédure pénale)
- ▷ « Aucun salarié ne doit subir les agissements répétés de harcèlement moral qui ont pour objet ou pour effet une dégradation de ses conditions de travail susceptible de porter atteinte à ses droits et à sa dignité, d'altérer sa santé physique ou mentale ou de compromettre son avenir professionnel. » (Code du travail, article L. 1152-1)

Why is it important?

- ▷ People outside science should trust scientists and experts because they pay for it.
- ▷ Scientific integrity is the very basis of the knowledge society.
 - ▷ waste of money if research not reproducible nor reliable:
 - ▷ only 36% of published results are reproducible in a significant manner (Science 349, 2015)
 - ▷ withdrawal of a publication for fraud costs **\$425,000 per paper** for investigation and full treatment of the case (Stern et al. 2014),

Singapore statement

▷ PRINCIPLES

- ▷ **Honesty** in all aspects of research
- ▷ **Accountability** in the conduct of research
- ▷ **Professional courtesy and fairness** in working with others
- ▷ **Good stewardship of research** on behalf of others

1. Integrity
2. Adherence to Regulations
3. Research Methods
4. Research Records
5. Research Findings
6. Authorship
7. Publication
Acknowledgement
8. Peer Review
9. Conflict of Interest
10. Public Communication
11. Reporting Irresponsible Research
Practices
12. Responding to Irresponsible
Research
13. Research Environments
14. Societal Considerations

Statistics and sanctions

- ▷ **detection of fraud is difficult, with rare institutional referrals**
- ▷ Corvol Report (2016) mentions (27 universities, 8 research institutions, last 4 to 5 years):
 - ▷ serious breaches of research integrity (FFP) :
 - ▷ fabrication: 2
 - ▷ falsification: 22
 - ▷ plagiarism: 46
 - ▷ conflicts of interest: 6
 - ▷ conflicts on signatures, blocking of publications, order des authors: 51
 - ▷ other types of scientific misconducts: 6
- ▷ 24 penalties taken, 23 dismissed cases:
 - ▷ no cases transmitted to the judicial authorities during the reporting period
 - ▷ no public report around these cases, with some exceptions.
- ▷ **Fears:**
 - ▷ for the reputation de their institution
 - ▷ thus internal management with recourse to mediation and case dismissals

Statistics and sanctions

- ▷ UPMC - doctorate cases (2011-2016): all but 2 detected ***on time***
 - ▷ fabrication: 1
 - ▷ Falsification: 2
 - ▷ Plagiarism: 2
 - ▷ Signatures: 2 (sent to delegate for Integrity)
 - ▷ Other types: 2-3

- ▷ Multiple origins:
 - ▷ publication pressure for defending one's thesis on time, applying for research funds, or getting a job or promotion
 - ▷ coaching deficiency, feeling of injustice, **deficient senior model**

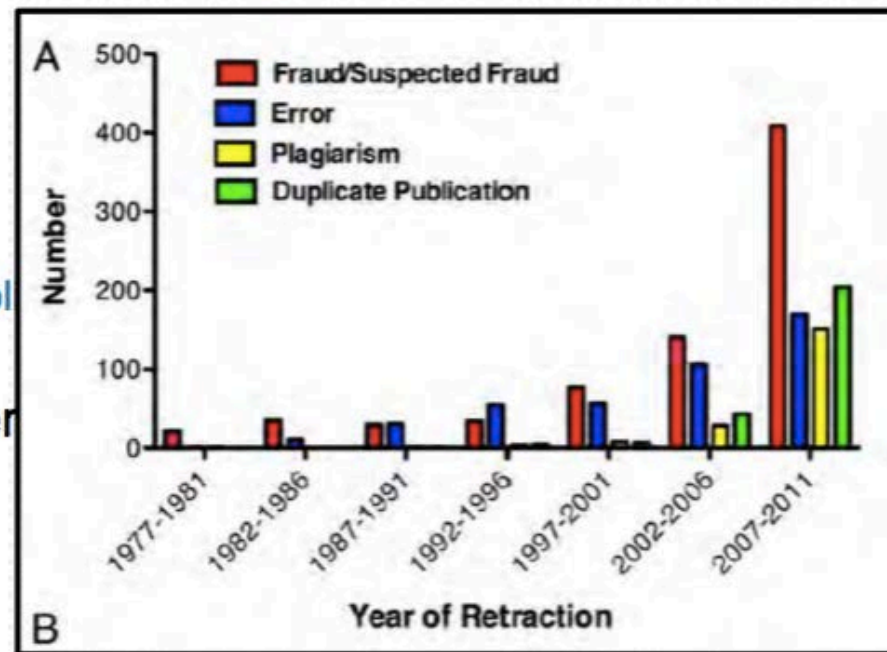
- ▷ all researchers can cross the yellow line of scientific integrity one day

Statistics and sanctions

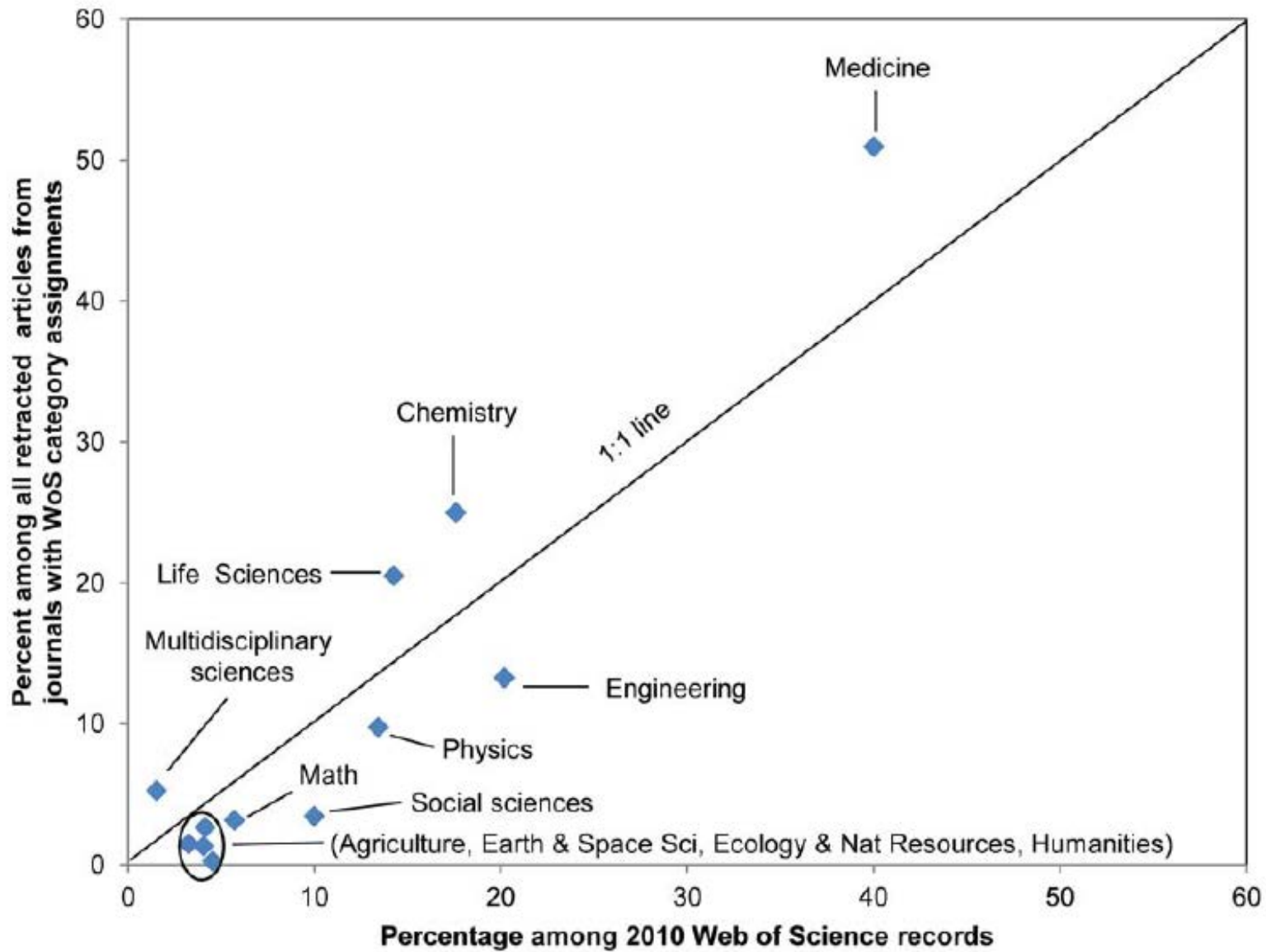
- ▶ Ferric C. Fang^{a,b,1}, R. Grant Steere^{a,1}, and Arturo Casadevall^d, —“Misconduct accounts for the majority of retracted scientific publications,” PNAS 1 October 2012 (online).

- ✦ Prior studies, most retractions due to error
- ✦ New evidence, 67% due to misconduct
- ✦ Evidence of misconduct in the public record

- ▶ Why have editors and employers allowed this to happen?
- ▶ Does retraction = misconduct?



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Teaching integrity

- ▷ The rules of ethics and integrity are learned by doing
 - ▷ in a context where ruling authorities in science are being overthrown through national and international competition
- ▷ Training must include methodology and scientific rigour
 - ▷ to decrease the frequency of non reproducible results
- ▷ Doctorate is the right moment to teach good practices
 - ▷ so that doctoral candidates apply rigour and honesty throughout their careers
- ▷ Link to Open Data
 - ▷ develop digital archiving of data (high cost)
 - ▷ The Council of the European Union "recognizes the importance of Open Science as a mechanism for strengthening research integrity, and integrity in research contributes to Open Science". (General secretariat of the Council, RECH 296, 1/12/2015)

Teaching integrity

- ▷ what is the right time for training in scientific integrity?
 - ▷ First year of doctorate:
 - ▷ define rules of rigour and integrity, at a time when candidates are most receptive
 - ▷ Mid-thesis:
 - ▷ remind candidate to be watchful with respect to scientific integrity
 - ▷ confrontation to reality, and to the difficulty of publishing their results and writing their thesis
 - ▷ Last year:
 - ▷ learning the rules for validating their thesis
 - ▷ learning the quality standards for their thesis

- ▷ Supervisors (incl. post-docs and team leaders) should:
 - ▷ ensure that their doctoral candidates apply the rules of research integrity
 - ▷ be a model of integrity in research for their students
 - ▷ be trained accordingly (coming requirement of the European Commission)

Education and information



EDUCATIONAL RESOURCE DEVELOPMENT

The Lab



Interactive Movie on Research Misconduct

PLAY FULL VERSION

EL LABORATORIO
PLAY SPANISH VERSION

繁體中文版
PLAY CHINESE VERSION

Download The Lab Guide

Description

In "The Lab: Avoiding Research Misconduct," you become the lead characters in an interactive movie and make decisions about integrity in research that can have long-term consequences. The simulation addresses Responsible Conduct of Research topics such as avoiding research misconduct, mentorship responsibilities, handling of data, responsible authorship, and questionable research practices.

The Characters

You assume the role of four characters confronted with the pressures of working in a research laboratory:



HARDIK RAO, a postdoctoral researcher, who deals with the competitiveness in an up-and-coming lab while balancing the responsibilities of a home life.



AARON HUTCHINS, a principal investigator, whose overwhelming responsibilities as a professor, researcher, and grantwriter lead to his decline as a responsible



KIM PARK, a third-year



PLAY FULL VIDEO

Description

The Office of Research Integrity (ORI) and the Office for Research Protections (ORP) present *The Research Clinic* interactive training video. The video illustrates the importance of protecting research and avoiding research misconduct. *The Research Clinic* allows you to assume the role of one of the characters and determine the outcome of the storyline by selecting decision-making options for each "playable" character.

The Characters

Case Two: Risky Authorship

RCR Casebook: Authorship and Publication

[Table of Contents](#) | [Previous](#) | [Next](#)

Jeff is a professor who teaches advanced statistics courses and also does some outside consulting. When he makes important intellectual contributions in the projects on which he consults, he typically is listed as a co-author and always requests that his specific role be described. He is often brought in at various stages of research projects. Sometimes project leaders do it right by bringing him in at the beginning so that he can help them plan the design, procedures, data analysis, and presentation and perhaps help write the proposal. In other cases, project leaders wait until they are ready to analyze their data and then realize that they need help since they lack statistics expertise. Sometimes these projects are a bit of a mess, but most of the time Jeff can rescue them.

One day, Jeff's institution was contacted by a journal editor to report that a reader is challenging the legitimacy of the data in a published paper and the journal is investigating the reader's charges of potential research misconduct. Jeff had a hand in designing conducting the data analysis in the paper submitted for publication. However, the editor had deleted the part the authors' detailed description of the roles authors played in producing the paper because the journal does not routinely include such material.

As a result, all three authors were investigated for misconduct. The first author, who was the Principal Investigator, had obtained the funding and designed the study. The second author, a post doc, had gathered the data and done the research. The third author, Jeff, had been brought in primarily to conduct the statistical analysis, which was difficult at times given flaws in their design. His job seemed pretty straightforward although the Principal Investigator and the post doc seemed edgy and defensive about their statistical naiveté.

What should Jeff do?

Discussion Questions for Facilitators

- Under what conditions do you think outside consultants or experts should accept authorship?
- What are the risks if you are willing to "rescue" studies for project members who turn out to know less about a methodology than they think they know?
- What steps might a consultant or expert take to ensure that they are not held responsible for the scientific misconduct of another person on the project?

Conclusion

- ▷ increase of proven misconducts over the last 10 years
- ▷ crucial role of **supervisors**
 - ▷ must be models for their doctoral candidates
 - ▷ **mentor** role!
- ▷ crucial role of **Doctoral Schools**
- ▷ crucial role of **large research units**

Sources:

- P. Corvol, *Bilan et propositions de mise en œuvre de la charte nationale d'intégrité scientifique*
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