



## Research integrity

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# On cardinal sins, venial sins, and peccadillos

- Data Fabrication? (Stapel et al.)  
Falsification? (1/10 psychologists? *De Standaard* 23Feb12)  
Plagiarism? (Schmitt, Ponta, Schavan, et al.)
- “Much more threatening are the dubious practices in the grey zone.  
This is where we are: the things we are doing are not really kosher, but they are widespread.”  
(G. Storms in *De Standaard* 24Nov2012)
- No data on the Belgian situation

## COMMENTARY

# Scientists behaving badly

Martinson BC, Anderson MS, de Vries R.

*Nature*, 2005, 435, 737-738

- Mail survey of NIH funded researchers (2002)
  - 1,768/3,409 mid-career scientists (44 y)
  - 1,479/3,475 early-career scientists (35 y)
  - 10 “sanctionable” behaviours
    - <2% for most serious misconduct (1-6)
    - 33% at least one (38% vs 28%)

**Table 1 | Percentage of scientists who say that they engaged in the behaviour listed within the previous three years (n = 3,247)**

<b>Top ten behaviours</b>	<b>All</b>	<b>Mid-career</b>	<b>Early-career</b>
1. Falsifying or 'cooking' research data	0.3	0.2	0.5
2. Ignoring major aspects of human-subject requirements	0.3	0.3	0.4
3. Not properly disclosing involvement in firms whose products are based on one's own research	0.3	0.4	0.3
4. Relationships with students, research subjects or clients that may be interpreted as questionable	1.4	1.3	1.4
5. Using another's ideas without obtaining permission or giving due credit	1.4	1.7	1.0
6. Unauthorized use of confidential information in connection with one's own research	1.7	2.4	0.8 ***
7. Failing to present data that contradict one's own previous research	6.0	6.5	5.3
8. Circumventing certain minor aspects of human-subject requirements	7.6	9.0	6.0 **
9. Overlooking others' use of flawed data or questionable interpretation of data	12.5	12.2	12.8
10. Changing the design, methodology or results of a study in response to pressure from a funding source	15.5	20.6	9.5 ***
<b>Other behaviours</b>			
11. Publishing the same data or results in two or more publications	4.7	5.9	3.4 **
12. Inappropriately assigning authorship credit	10.0	12.3	7.4 ***
13. Withholding details of methodology or results in papers or proposals	10.8	12.4	8.9 **
14. Using inadequate or inappropriate research designs	13.5	14.6	12.2
15. Dropping observations or data points from analyses based on a gut feeling that they were inaccurate	15.3	14.3	16.5
16. Inadequate record keeping related to research projects	27.5	27.7	27.3

Note: significance of  $\chi^2$  tests of differences between mid- and early-career scientists are noted by \*\* ( $P < 0.01$ ) and \*\*\* ( $P < 0.001$ ).

# How to deal with this situation?

- Better (paid) review process?
- More strict policies of scientific journals?
- Making the raw data accessible for reviewers and colleagues?

Detection at the end of the process...

# Situation at KU Leuven

## Commission on Scientific Integrity

- The Commission on Scientific Integrity (CSI) is a commission of the Research Policy Board.
- The commission has been established to deal independently with discussions and problems affecting the integrity of academic practice

# Situation at KU Leuven

## The tasks of the Commission on Scientific Integrity:

- Investigates reports of problems and formulates recommendations concerning the actions to be taken
- Is kept informed of procedures currently occurring elsewhere in connection with K.U.Leuven researchers
- Proposes procedural adjustments if necessary
- Proposes norms concerning academic integrity
- Studies questions relating to academic integrity on its own initiative, or when asked by the Research Policy Board, the Executive Board, or the Academic Board
- Can make proposals for education and consciousness-raising concerning problematics arising in connection with academic integrity (e.g., seminars, programmes, possible research into the integrity problematics)

# Situation at KU Leuven

## Problems outside the authority of the commission :

- Issues of scientific ethics, which arise, for example on ethical review boards for experimentation (IRB)
- Issues related to the property rights associated with scientific discoveries (LRD. )
- Problems between students and instructors (Examination Committee ombudsperson)
- Problems between a PhD student and the doctoral research supervisor, and which are related with the task of the supervisor as advisor (Doctoral Advisory Committees *ombudsperson*)



# Misconduct prevention/Integrity promotion?

At earlier stages in the proces

- Training of junior researchers?
- Training of senior researchers?
  - Eg: linked with funding of FWO/FNRS, ERC, etc
- National, international, professional guidelines?
- Laws?

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# Doctoral school biomedical sciences

- 2002:
  - first Seminar 'Ethics' for PhD students (B. Nemery & C. Denef)
- 2008 module 'Good scientific conduct' in doctoral school
  - Ethics in science + notebook keeping
  - Compulsory for all PhD students

# Doctoral school biomedical sciences

- Ethics in Science
  - Seminar of ½ day
  - Max 30 participants/seminar; >200 PhD students/y
  - Scientist (Nemery) + Ethicist (Dierickx)  
(from 2012: also Baes + Borry)
  - After first year of PhD
  - Part 1: seminar with case studies
    - Written preparation by students
    - Interactive seminar
  - Part 2: formal presentation:
    - integrity, authorship, conflict of interest, misconduct, image

# Doctoral school biomedical sciences

- Future
  - Year 1:
    - ½ day teaching
    - Ethics in science
    - Data management (how/where/what to store, whose data, etc)
  - Year 3
    - Seminars of 1-2 h

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# Guidelines in E.U.: no union

- Recent documents
- 19/31
- From law ->nation. framework -> no framework -> no guideline
- Many differences (approach, size, ...)
- No agreement on: borders, causing factors, remedies, ...
- Definition of the problem determines the size of the problem (eg carelessness)

# Statements for discussion

- “A country as Belgium cannot resolve the problem. This should be done at an international level, because it aggravates the credibility of scientific research” (G. Storms)
- Cardinal sins ~ Heavy sanctions  
Minor sins ~ ??? sanctions
- Improving the management vs revision of the system