Evidence, uncertainty and values: some key issues

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Promoting ethical science, design and technology

http://www.sgr.org.uk/

• Presentation at the 'Circling the Square' conference, Nottingham University, 22 May 2014.
• Main sources:

SGR (2009). Science and the corporate agenda: the detrimental effects of commercial influence on science and technology. http://www.sgr.org.uk/publications/science-and-corporate-agenda

SGR (2013). Offensive insecurity: the role of science and technology in UK security strategies. http://www.sgr.org.uk/publications/offensive-insecurity

Overarching issue

- Narrow, powerful interests have key role in R&D, especially:
  - Corporations
    - Fund 2/3 of R&D
    - Promote short-term economic agenda within public R&D
  - Military
    - World's largest funder of R&D is Pentagon
    - In UK, 1/6 public R&D is military
    - Narrow focus

UK comparison on using R&D for different approaches to national security:

• Ministry of Defence spends around £1.5-2.0bn/y on R&D while Foreign Office spends about £5m/y – ¼%

• Foreign Office has no dedicated R&D budget

Specific problems from vested interests

1. Undue influence on individual research studies
   - Sponsorship bias
   - Commercial confidentiality restrictions
   - Undeclared conflicts of interest
2. Misleading the public
   - Marketing bias
   - Unbalanced public relations campaigns
3. Prioritisation of research with narrow economic/ military benefits

All of these have important implications for the use of research in policy-making

Example 1: sponsorship bias

- Major studies

Study	Sector	Industry favourable result
Als-Nielson et al (2003)	Pharmaceuticals	3 times more likely
Lesser et al (2007)	Food	4 to 8 times more likely
Bero et al (2007)	Pharmaceuticals	20 times more likely

- Distorted results can (e.g.) compromise patient safety and/ or increase health care costs
- Limited investigation of this problem in other sectors

• Als Nielson et al (2003) – analysis of 370 clinical trials of range of pharmaceuticals
• Lesser et al (2007) – analysis of 206 studies of milk, fruit juice and soft drinks
• Bero et al (2007) – analysis of 192 trials of statins
• AllTrials campaign estimates that clinical pharmaceutical trials with positive results are twice as likely to be published as negative trials, and only half of all clinical trials are published
• Industry funded studies also tend to take longer to be published
• Distorted results can lead to drugs being considered safer or more effective than they actually are. New drugs can be more expensive, eg because they are still under patent.

Full references and further discussion in:
Science and the Corporate Agenda: Chapter 4.
Mejia (2008). Taking the industry road. Nature, vol 453, p1138-9.
AllTrials campaign. http://www.alltrials.net/wp-content/uploads/2013/01/Missing-trials-briefing-note.pdf

Example 2: public relations campaigns

- High profile industry-funded campaigns have emphasised uncertainty to stall legislation on:
  - Health damage caused by tobacco
  - Climate change caused by fossil fuels
- High profile marketing campaigns have emphasised certainty to promote sales of:
  - Pharmaceuticals
  - Synthetic chemicals

These are examples of widespread problems

Example 3: shaping research agendas

- Prioritisation of ‘techno-science’
  - To develop new technologies rather than increase knowledge
  - Restricted opportunity to investigate pros & cons before new technology is introduced

Values are key

- More distance between researchers and powerful funders
- More balance between public funding for techno-science and ‘science for knowledge’
- More priority for the broader public interest