Balancing the Justification for "Further Research" and "Policy Action": A Case Study of Chrysotile Asbestos in Canada

by

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QUESTION …

- *Is science value free?*

OR, said another way:

- *Is science value neutral?*

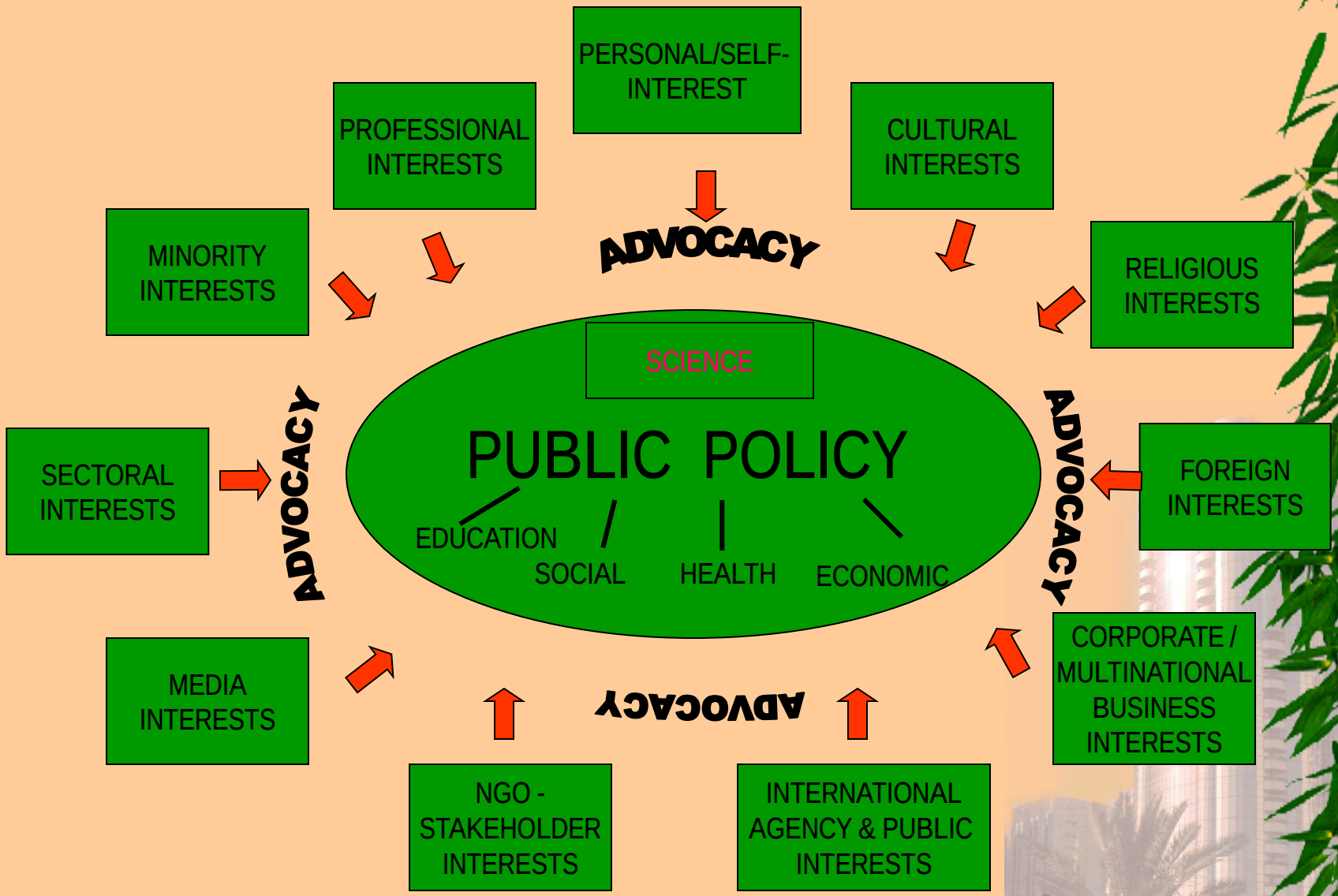
The Joint Policy Committee of the Societies of Epidemiology (JPC-SE)

www.jpc-se.org

Founded in 2005
to focus on the nexus
between evidence and policy
on behalf of member societies of epidemiology

Lenses through which we may apply our training

- **Macro-level lens**
  - *Trans-disciplinary science/post-normal science*
  - *Quantitative and qualitative methods*
- **Meso-level lens**
  - *Multi- and Inter-disciplinary science*
- **Micro-level lens**
  - *Traditional silo-based linear, reductionist science*


PERSONAL/SELF-INTEREST
PROFESSIONAL INTERESTS
CULTURAL INTERESTS
MINORITY INTERESTS
ADVOCACY
RELIGIOUS INTERESTS
SCIENCE
SECTORAL INTERESTS
ADVOCACY
PUBLIC POLICY
ADVOCACY
FOREIGN INTERESTS
EDUCATION
SOCIAL
HEALTH
ECONOMIC
MEDIA INTERESTS
ADVOCACY
CORPORATE / MULTINATIONAL BUSINESS INTERESTS
NGO - STAKEHOLDER INTERESTS
INTERNATIONAL AGENCY & PUBLIC INTERESTS

Science is but one such pressure

HUMILITY AND EMPATHY FOR THE POLICY-MAKER

Be aware of forces at play that influence both science and policy.

… Great vigilance and personal integrity are required to change course.

Influences and pressures

- From funding sources to peer review
- From the questions we ask through access to data
- From study design to data analysis and interpretation
- From dissemination to job security

Manufacturing Doubt

- **Epstein.**
  ***The Politics of Cancer*, 1978**

- **Davis.**
  ***When Smoke Ran Like Water: Tales of Environ Deception …*, 2002**
  ***The Secret History of the War on Cancer*, 2007**
  ***Disconnect: The Truth About Cell Phone Radiation …*, 2010**

- **Michaels.**
  ***Doubt is their Product: How Industry's Assault on Science…*, 2008**

- **McCulloch & Tweedale.**
  ***Defending the Indefensible: The Global Asbestos Industry …*, 2008**

By fomenting uncertainty, the health policy-maker's role is undermined …

→ the subversion and ambushing of science

The Four D's applied to scientists studying that which does not support the *status quo*

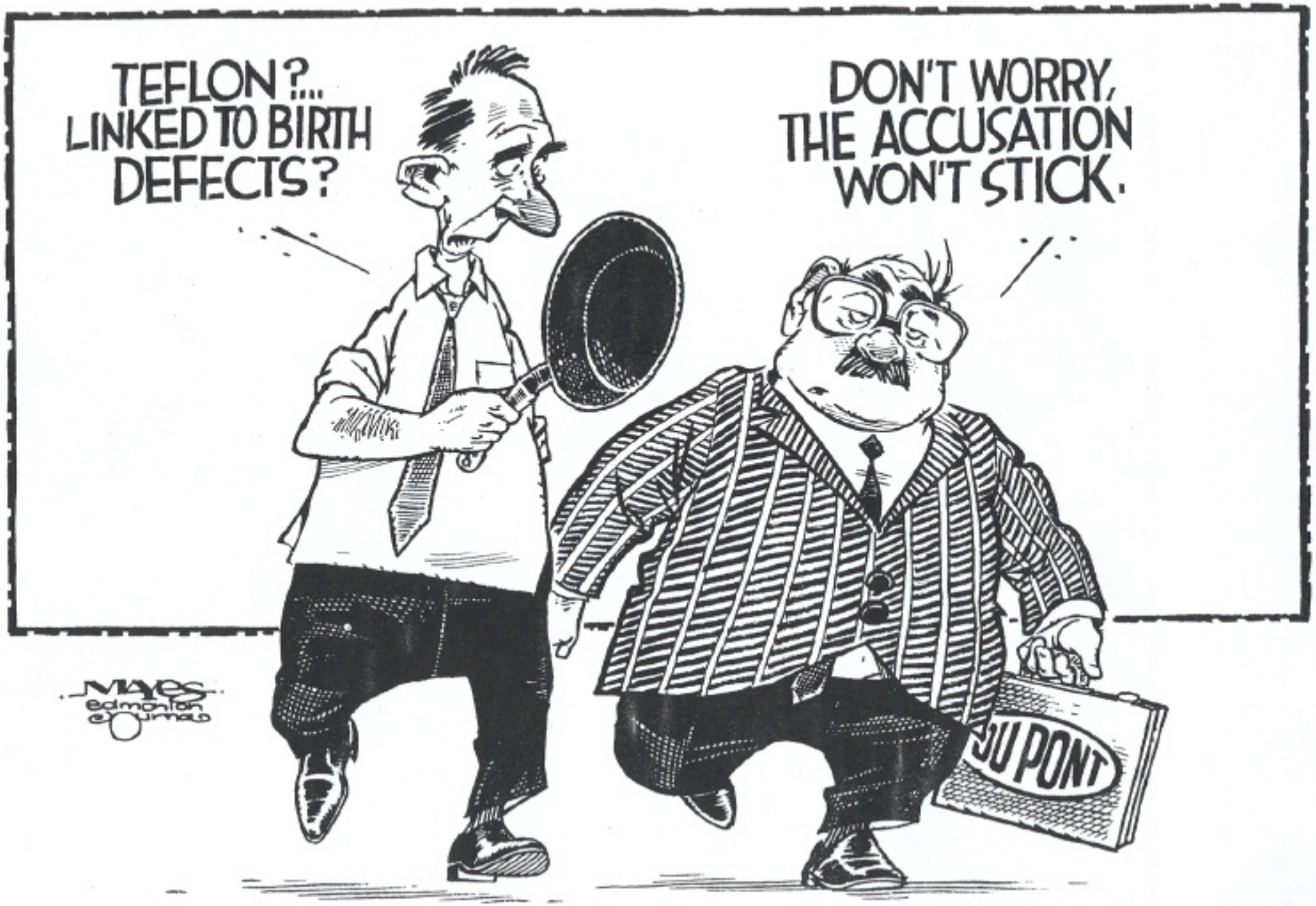
- **Deny**
- **Delay**
- **Divide**
- **Discredit**
  - **[Dismiss]**

“Industry’s offensive against the regulation of health and safety hazards uses academics to downplay or deny the seriousness of the hazards...”

Clayson and Halpern

J. of Public Health Policy

September, 1983


TEFLON?... LINKED TO BIRTH DEFECTS?
DON'T WORRY, THE ACCUSATION WON'T STICK.
MAYES
edmonton journal
DU PONT

Judge Miles W. Lord, 1982

On "*Corporate Ethics and Environmental Pollution*":

- ***"Corporations create 80% of our GNP. They, of all entities working, have the most potential for good or evil in our society."***

Eleven articles …part of a crime-fraud

https://www.rightoncanada.ca/?p=2078

June 7, 2013

- **In a powerful decision, a New York appeal court has found that eleven articles, published in scientific journals, were potentially part of a crime-fraud. The articles, financed by Georgia-Pacific, were intended to cast doubt on the capability of chrysotile asbestos to cause cancer.**

THE NORMAL RANGE OF HUMAN CONDUCT

POWER CORRUPTS. ABSOLUTE POWER CORRUPTS ABSOLUTELY!

(Lord Acton's premise)

NO ONE IS IMMUNE!

Deontological (i.e. duty-based) ethics

In essence, the scientific ethic expects of scientists the duty to:

1. **Use appropriate methods;**
2. **Be objective;**
3. **Be honest in reporting;**
4. **Publish results - POSITIVE as well as NEGATIVE;**
5. **Prohibit distortion in, for example:**
   - **Falsification of data**
   - **Biases inherent to study design**
   - **Proper analytical procedures**
   - **Objective interpretation**
6. **Do one's own work:**
   - **Plagiarism**
   - **Acknowledge sources**
   - **Graduate students not to be exploited**

GOOD ETHICS ⇔ GOOD SCIENCE

The FUNDAMENTAL PRINCIPLES of BIOETHICS include:

RESPECT FOR AUTONOMY

- **Requires Respect for Individual Rights and Freedoms** *(voluntary vs. involuntary exposures)*

BENEFICENCE

- **Requires Doing Good** *(consider consequences of interventions in people's lives and of research findings)*

NON-MALEFICENCE

- **Requires Doing No Harm**

JUSTICE

- **Requires the fair and equitable allocation of risks and benefits to all without discrimination**

Other public health principles

- **Protect the most vulnerable in society**
  - ***Beneficence***
- **Involve communities in our research**
  - ***Respect for autonomy***
- **Serve the public health interest above any other interest**
  - ***Beneficence and Non-maleficence***
- **Always act with INTEGRITY**
  - ***Beneficence & Non-maleficence***

Character vs. Actions

Virtues do not replace ethical rules. Rather, an account of professional ethics is more complete if virtuous traits of character are identified, as per "*Epidemiology and virtue ethics*" by Weed & McKeown, 1998 IJE

VIRTUES OF PROFESSIONALS

- **Humility – Respect the input and opinions of others/Self-effacement**
- **Fidelity – Honor one's commitments/Promote trust**
- **Justice – Act fairly**
- **Patience – Take time to hear others' viewpoints**
- **Industry – Do your level best/Excel**
- **Veracity – Tell the truth/Be honest**
- **Compassion – Empathize**
- **Integrity – Demonstrate good moral character**
- **Serve – Protect the most vulnerable/Serve the public interest**
- **Prudence – Err on the side of caution/Demonstrate good judgment**

Examples

The Hill "criteria":
Is an observed association causal?

- Strength of Evidence
- Consistency across studies
- Specificity of effects
- Temporality of effects
- Biological Gradient (dose-response)
- Plausibility of effects
- Coherence with other knowledge
- Experimental evidence
- Analogy based on experience

A published work of relevance

- **Weed, Douglas L**. *Underdetermination and incommensurability in contemporary epidemiology*. Kennedy Institute of Ethics Journal, Vol. 7(2):107-127; 1997.

Two Examples (from Weed 1997)

- **Meta-Analyses:**
  - **Alcohol & Breast Cancer**
  - **Induced Abortion & Breast Cancer**

But, Hill cautions

- **Broad interpretation of the evidence with respect to his “aspects”.**
- **Use as a guide to help answer if there is any other way to explain the set of facts before us**
- **To not discount associations because there is insufficient evidence or understanding at one point in time.**
- **Causal judgments do not require perfect information and must be considered in the context of available knowledge and a responsibility to protect health.**

Chrysotile Asbestos

- **Rotterdam Convention**
  - **Prior informed consent**
- **Ukraine, Kazakhstan, Kyrgyzstan, India, Zimbabwe, Vietnam and [Canada replaced by Russia]**
- **When facts (evidence) and the ethical principle of solidarity are overruled by <u>ideology</u> or <u>business interests/influence</u> …**

Classical techniques that skew results: from biased methods to *junk science*

- Under-powered studies
- Inadequate latency periods
- Inadequate follow-up
- Contaminated controls
- Unbalanced discussion
- Selective disclosure of competing interests

Hill concludes …

- "All Scientific work is incomplete – whether it be observational or experimental. All scientific work is liable to be upset or modified by advancing knowledge. That does not confer upon us a freedom to ignore the knowledge we already have, or to postpone the action that it appears to demand at a given time."

Lenses through which we may apply our training

- **Macro-level lens**
  - *Trans-disciplinary science/post-normal science*
  - *Quantitative and qualitative methods*
    ALWAYS EXAMINING EVIDENCE FOR CAUSAL JUDGMENTS
- **Meso-level lens**
  - *Multi- and Inter-disciplinary science … generating evidence for causal judgments*
- **Micro-level lens**
  - *Traditional silo-based linear, reductionist science*
    ALWAYS CALLING FOR FURTHER RESEARCH

The Challenge

- **Who takes the risks while who derives the benefits? Or, whose interests are being served in this policy?**
- **Does the burden of proof of safety lay on the proponent, or on Joe and Jane Public?**

TAKE HOME MESSAGES

- **Uncertainty IS inherent to science**
- **Science strives to be value-neutral/value-free, but the human instrument is not**
- **Look first to ourselves, because causal inference is a function of who it is that is making the inference (value-laden) which, in turn, is a function of how we apply our scientific methods**

DISCUSSION