Precautionary Measures and Risk Management

Topic 8

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Content of the Lectures

- Topic 1: Risk concept
- Topic 2: Perception of risks
- Topic 3: Risk communications
- Topic 4: Trust and credibility
- Topic 5: Labeling risks
- Topic 6:Participatory decision making and dialogue
- Topic 7: Disclosure of uncertainties
- Topic 8:Precautionary measures and risk management
- Topic 9: Evidence characterization
- Topic 10: Tips for risk communication

Should we apply precautionary measures to protect people from potential RF EMF hazards?
Should we apply it to mitigate related public concerns?

The precautionary principle

On 2 February 2000 the Eurpean Commission adopted the Communication on the use of the Precautionary Principle

The precautionary principle may be invoked where urgent measures are needed in the face of a possible danger to human, animal or plant health, or to protect the environment where scientific data do not permit a complete evaluation of the risk. It may not be used as a pretext for protectionist measures. This principle is applied mainly where there is a danger to public health.

http://eur-lex.europa.eu/smartapi/cgi/sga_doc?smartapi!celexplus!prod!CELEXnumdoc&lg=en&numdoc=52000DC0001

The precautionary principle

Trigger for the use of PP

- The precautionary principle may only be invoked when the three preliminary conditions are met - identification of potentially adverse effects, evaluation of the scientific data available and the extent of scientific uncertainty

The precautionary principle

Measures following the application of the PP:

There are a whole raft of measures for decision-makers to choose from:

- Funding of a research program
- Informing the public about extra safety-measures
- Implementing special limit values, etc.

The precautionary principle

The precautionary principle should be informed by three specific principles:

- Implementation of the principle should be based on the fullest possible scientific evaluation. As far as possible this evaluation should determine the degree of scientific uncertainty at each stage
- Any decision to act or not to act pursuant to the precautionary principle must be preceded by a risk evaluation and an evaluation of the potential consequences of inaction
- Once the results of the scientific evaluation and/or the risk evaluation are available, all the interested parties must be given the opportunity to study of the various options available, while ensuring the greatest possible transparency.

http://europa.eu/legislation_summaries/consumers/consumer_safety/l32042_en.htm

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The precautionary principle

Where action is deemed necessary, measures based on the precautionary principle should be, inter alia:

- proportional to the chosen level of protection,
- non-discriminatory in their application,
- consistent with similar measures already taken,
- based on an examination of the potential benefits and costs of action or lack of action (including, where appropriate and feasible, an economic cost/benefit analysis),
- subject to review, in the light of new scientific data, and
- capable of assigning responsibility for producing the scientific evidence necessary for a more comprehensive risk assessment.

http://europa.eu/legislation_summaries/consumers/consumer_safety/l32042_en.htm

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The view of the WHO on the PP

Prudent Avoidance and other cautionary policies regarding EMF exposure have gained popularity among many citizens, who feel that they offer extra protection against scientifically unproven risks. However, such approaches are very problematic in their application. The chief difficulty is the lack of clear evidence for hazard from chronic exposure to EMF below recommended guidelines, or any understanding of the nature of a hazard should one exist. While the weight of evidence needed to trigger a cautionary policy is undoubtedly lower than that needed to set exposure guidelines, clearly a hazard must be identified and some understanding is needed of the conditions under which it is likely to be present.

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Critical Questions:

- How much evidence is evidence enough to implement precautionary actions?
- Should the PP be applied in order to cope with public concerns?

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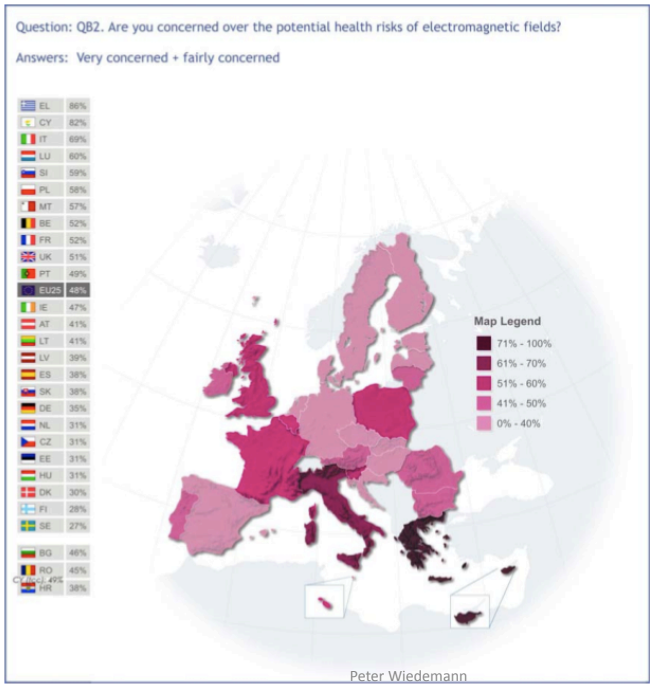

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The New Zealand Ministries of Health and Environment noted that community concerns over RF exposure might be addressed by "…minimizing, as appropriate, RF exposure which is unnecessary or incidental to achievement of service objectives or process requirements, provided that this can be readily achieved at modest expense".

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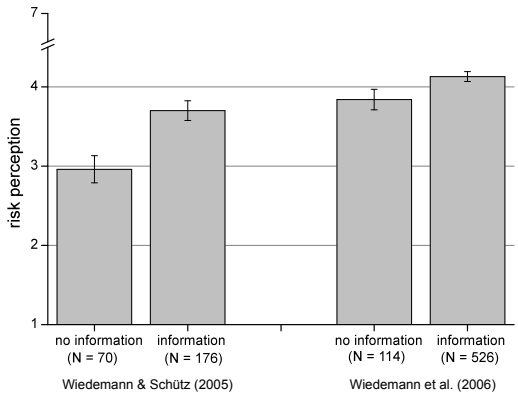
Open Questions

- Do precautionary measures really deliver improved protection?
- Do people feel safer when they know that precautionary measures are in place to protect their health?

Previous Research

- Wiedemann, P. M., & Schütz, H. (2005). The Precautionary Principle and Risk Perception: Experimental Studies in the EMF Area. *Environ Health Perspect, 113*, 402-405.
- Wiedemann, P. M., Thalmann, A. T., Grutsch, M. A., & Schütz, H. (2006). The impacts of precautionary measures and the disclosure of scientific uncertainty on EMF risk perception and trust. *Journal of Risk Research, 9*(4), 361-372.
- Barnett, J., Timotijevic, L., Shepherd, R., & Senior, V. (2007). Public responses to precautionary information from the Department of Health (UK) about possible health risks from mobile phones. *Health Policy, 82*(2), 240-250.



International Study of the effects of information about Precautionary measures on risk perceptions of mobile telephony (ISEP):

Effects of survey experimental variables on risk perceptions and international comparisons.

Wiedemann, P. , Alvarez J, Barnett J, Boerner F, Clauberg M, Croft R, da Silva Medeiros FN, de Villiers B, Diaz A, Gutteling JM, Kikkawa T, Schuetz H, Shukla R.

Research Questions

- Does information on precautionary measures influence risk perception of cell phones and base stations?
  - Precautionary limits
  - Disclosure of SAR/base station sites
  - Protection of sensitive people / areas
  - Exposure minimization
- Does risk perception differ for countries?
- Does benefit perception differ for countries?

Multi Center Study

- Australia
- Brasilia
- Germany
- India
- Japan
- Netherlands
- RSA
- UK
- USA

- 9 x 400 subjects

Design

- Precautionary measures
  - No information on precautionary measures (basic text)
  - Minimization of RF EMF emissions
  - Protecting sensitive people / areas
  - Precautionary limits
  - Disclosure of information (SAR values / base station sites)
- Framing
  - Safety ("protect public health")
  - Risk ("avoid health risks from mobile telephony")
- Order/Reference case
  - cell phones → base stations
  - base stations → cell phones

2x2x5 Experimental Design, between subjects

	Basic text	Exposure mini-mization	Precaution-ary limit	Sensitive people/ places	Disclosure of information
Risk frame	Cell phone Base station				
Safety frame					

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Operationalization: Example for Stimulus Text

Basic text

In order to protect public health (to avoid health risks), the International Commission for Non-Ionizing Radiation Protection - an international body collaborating with the World Health Organization - has established exposure guidelines and recommended exposure limits. However, in some countries a debate about the potential health risks of mobile telephony is still ongoing at all levels of the society .

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Operationalization: Example for Stimulus Text

Reference: Cell phone Measure: Exposure minimization; Framing: safety/risk

In order to protect public health (to avoid health risks), the International Commission for Non-Ionizing Radiation Protection - an international body collaborating with the World Health Organization - has established exposure guidelines and recommended exposure limits. However, in some countries a debate about the potential health risks of mobile telephony is still ongoing at all levels of the society.
As a precaution, to protect public health (to avoid health risks), some experts (e.g. www.bioinitiative.org) strongly recommend the use of cell phones with substantially reduced emissions.

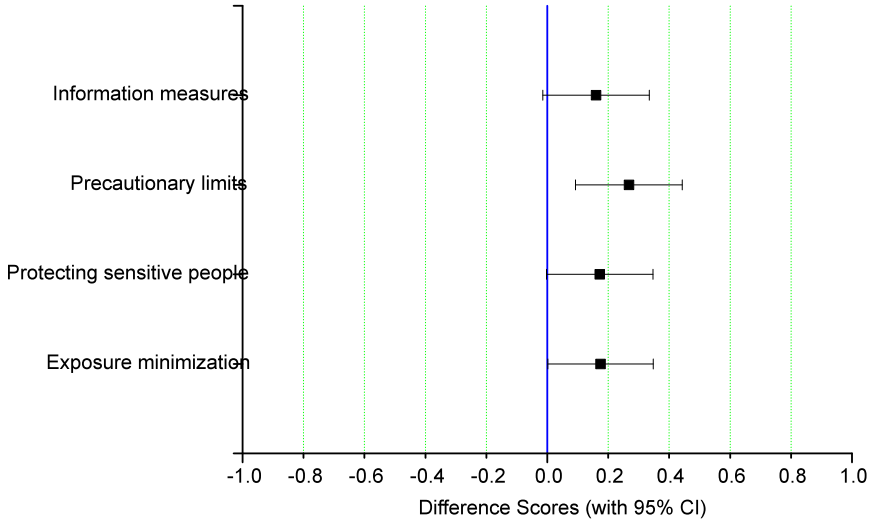
Hypothesis

- Providing information about precautionary measures affects perceived risk and trust in risk management
  - i.e. those who receive information about precautionary measures will on average have a different risk perception than those who do not receive such information .

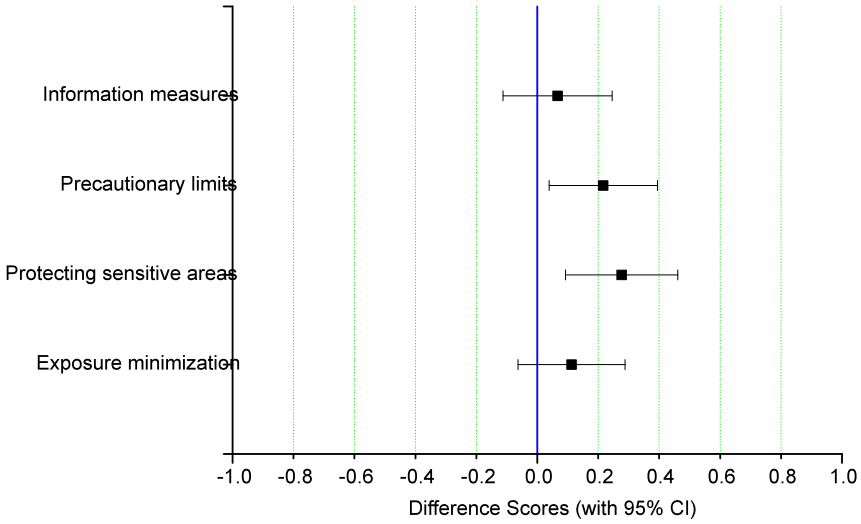
Statistical Analysis

- To test the hypotheses, risk perception difference scores were computed between each of the four precautionary information conditions and the basic text.
- A positive difference score indicates that the risk perception is higher in the precautionary-information condition than in the no-precautionary-information condition.
- Conversely, a negative difference score indicates that the risk perception is lower in the precautionary-information condition than in the no-precautionary-information condition.
- 95% confidence intervals are provided to check whether the difference score can be considered to be really different from zero, that is, from no difference between the no-precautionary-information condition and the respective precautionary-information condition.

All in all, how threatened do you feel by electromagnetic radiation emissions from cell phones?



All in all, how threatened do you feel by electromagnetic radiation emissions from base stations?



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Lessons learned

- In general, information about precautionary measures can increase risk perceptions and can decrease effect trust in risk management.
- However, not all effects are statistically significant and there are differences between the involved countries.
- Information on precautionary measures does increase risk perception of base stations in four countries (Brazil, Germany, UK, USA). For India, it does decrease risk perception of base stations.
- Information on precautionary limits and on protection of sensitive areas were the types of information that most often increased base station and cell phone risk perception.

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Lessons learned

- Precautionary measures are not appropriate measures for calming down public concerns.
- If applied they require special communication efforts in order to avoid an increase in risk perceptions.