

HPA response to High Level Expert Group on European Low Dose Risk Research Draft report (8 September 2008)

Introduction

The High Level expert group on European low dose risk research (HLEG) brought together representatives from six national bodies (BfS, Germany; CEA, France; Department of Health, UK; STUK, Finland; IRSN, France and ISS, Italy) with research or policy interests in low dose ionising radiation risk and the European Commissions EURATOM programme. The objectives of the HLEG were stated as:

- to formulate and agree the policy goals to be addressed by low dose risk research
- to develop a strategic research agenda and roadmap for low dose risk research in Europe
- to specify the essential elements of, and next steps for establishing a sustainable operational framework for low dose risk research in Europe.

This initiative was prompted by the Europe-wide decline in expertise in radiation risk research/teaching and the realisation that there is increasing use of ionising radiation in medicine and also plans to build new nuclear power plants. Thus, there is a continued need to have an accurate assessment of low dose risks to ensure appropriate protection of populations while the benefits of use of ionising radiation are realised.

The HLEG produced their draft report on 8 September 2008 and invited comments during a consultation period closing on 30 November 2008.

Key points of HLEG draft report

The HLEG draft identifies two key policy questions regarding low dose ionising radiation risk:

- how robust is the current system of radiation protection and risk assessment in the light of scientific uncertainties?
- how can it (the system of protection) be improved?

The draft goes on to identify the judgements that determine the robustness of the radiation protection system –

- the shape of the dose-response for cancer
- tissue sensitivities for cancer induction
- individual variability in cancer risk
- the effects of radiation quality (type)
- risks from internal radiation exposure
- risks of, and dose-response relationships for non-cancer diseases.

For each of the above topics, the draft provides a summary of current knowledge and promising future research directions over 10 years or more.

Finally the draft proposes the establishment of a trans-national organisation, MELODI (Multidisciplinary European Low Dose Initiative) to provide the 'sustainable operational framework for low dose risk research'.

HPA Comments

Major issues

1. HPA welcomes the initiative taken by the HLEG to ensure a sustainable future for relevant low dose risk research. HPA share the HLEG concerns on dwindling expertise and training in relevant scientific disciplines. We note that similar concerns have been discussed within the UK government's Committee on Medical Aspects of Radiation in the Environment (COMARE).
2. HPA agrees with the identified policy needs. However, the draft report falls somewhat short in developing a strategic research agenda and 'roadmap' (one of the objectives of the group). While the directions identified in sections 3.1-3.5 provide some basis for this development there is much to be done to prioritise research areas and, perhaps most importantly, to develop a logical and productive sequence of studies to address the scientific uncertainties. This would require a more detailed analysis of research methods/approaches available and their probability of delivering clear advances in quantitative or mechanistic understanding of health risks. The HPA encourages HLEG/MELODI to address these more detailed analyses before making firm decisions on future research priorities.
3. To be effective the suggested MELODI initiative will require strong leadership. The organisational structure presented as Figure 8 is essentially that of a 'virtual institute'. The HLEG report should provide a clear statement of whether it intends MELODI to act as a virtual institute. Those who may sign up to such an initiative should be provided with as much clear information as possible on the intentions of MELODI before being asked to join/co-operate.

Other issues

4. HPA agrees with the identified key areas/topics, judgements on which determine the robustness of systems of protection. However it is suggested that one of the 'bullets' should be modified as follows:
 - risks of, and dose-response relationships for, non-cancer diseases *and hereditary effects*.
5. In considering future research directions the HLEG draft places considerable emphasis on the integration/co-ordination of experimental, epidemiological and modelling studies. HPA agree that this would be beneficial but we also note that there are limited opportunities for genuinely integrated experimental and epidemiological research.

The graphical representation of effort required in the various areas of research identified are rather speculative, predicting the pace of research in specific areas over 10 years or more is notoriously difficult.
6. While we agree with the research directions identified, research on low dose risk has to be open to new directions and so the initiative should included an element of funding for less goal-oriented, more 'blue sky' research activity. The size of this fund is open to discussion.
7. The HLEG report suggests the formation of a trans-national structure, MELODI, to develop and co-ordinate low dose risk research in Europe. There is insufficient information in the report on how MELODI would be implemented or funded. A Joint

Programming Initiative (JPI) is suggested for consideration but it should be noted that these schemes are controversial (eg <http://www.rsc.org/chemistryworld/News/2008/August/12080801.asp>). Also there is likely to be a tight timetable should MELODI wish to be identified as a JPI.

8. One of the proposed MELODI activities is to undertake '.....major periodic review of knowledge on risks of radiation at low doses..... and development of scientific views on major emerging scientific or policy issues related to low dose risk'. HPA believe the periodic review activity is currently performed well by organisations such as UNSCEAR, ICRP NCRP and USNAS (BEIR committees) and see limited value in further independent scientific review activities. Many of the same individuals would likely be involved at the EU level as at other levels. A more realistic ambition would be for MELODI to seek close working relationships with these bodies. In a similar way, close working relationships with EU expert groups and ICRP could encompass emerging radiological protection policy issues.
9. A 'holistic' approach to research/policy is agreed to be required to improve knowledge on radiation health risk at low doses. It is however important to recognise that greater knowledge may at times serve to reduce confidence in low dose risk estimates. For example it can be argued that the developing knowledge on the existence of delayed and non-targeted phenomena in radiobiology has served to question the confidence on radiation cancer risk judgements. In this respect figure 9 – while clearly an appropriate aspiration – may be somewhat over-simplistic.

Glossary

BEIR	- Biological Effects of Ionizing Radiation committees of the US National Academy of Sciences
BfS	- Bundesamt für Strahlenschutz, German Federal Office for Radiation Protection
CEA	- Commissariat à l'Énergie Atomique, French Atomic Energy Commission
COMARE	- UK Committee on Medical Aspects of Radiation in the Environment
DH	- UK Department of Health
EC/EU	- European Commission/European Union
HLEG	- High Level Expert Group on European Low Dose Risk Research
ICRP	- International Commission for Radiological Protection
ISS	- Istituto Superiore di Sanità – Italian national health institute
IRSN	- Institut de Radioprotection et de Sûreté Nucléaire, French Institute for Radiological Protection and Nuclear Safety
JPI	- Joint Programming Initiative
MELODI	- Multidisciplinary European Low Dose Initiative
NCRP	- National Council on Radiation Protection
STUK	- Sateilyturvakeskus, Finnish Radiation and Nuclear Safety Authority
UNSCEAR	- United Nations Scientific Committee on the Effects of Atomic Radiation
USNAS	- United States National Academy of Sciences