

- Be a strong advocate for your position; that is why you are here.
- By all means, present additional facts, not alternative facts.
- Be open to new information; listen and consider how different data and analysis apply to our goals and be open to someone else's "facts".
- Apply the scientific method to help us achieve our goal: observe, experiment, measure, and evaluate.

As the conference came to an end, it was apparent that the presenters, the session moderators, and the attendees themselves had followed those admonitions well. The question-and-answer periods following each segment of the program had been challenging, vigorous, and informative. A sense of real progress toward the stated goals was clearly felt and was frequently expressed by the departing participants. There was tentative agreement that serious reconsideration of low-dose exposure limit policies was in order, and the formulation of next steps was under way.

It was obvious that there were areas where consensus was not possible, such as the shape and slope of the dose-response relationship in the low-dose region. Ludwig Feinendegen, honorary chair of the conference and professor emeritus in nuclear medicine at Germany's Heinrich Heine University, provided the following over-

view of the meeting in closing.

"There is very little question that the meeting reached its goal. The goal of open exchanges of facts, views, interpretations, hypotheses, and theories and of their consequences of optimization of radiation protection with the best possible outcome in the service of society was reached.

"Extensive efforts were made to ensure that the interdisciplinary composition of the experts was well balanced and came from a wide range of backgrounds, including epidemiology, systems biology, cell and molecular biology, biochemistry, biophysics, health physics, dosimetry, mathematics, nuclear operations, modeling, and medicine. Completeness required representatives of the nontechnical populations affected by the issues to be incorporated—the legal socio-economists, decision makers, and administrators, as well as lay people directly impacted by decisions to evacuate real or potential radiation areas. After three days of meeting with this high-powered group, it became obvious that there were several areas where we were able to approach consensus. However, there are several other areas where serious differences remain. These are listed below, and extensive discussion and data were presented by all sides of these controversies. The major differences seem to be related to the shape and slope

of the dose-response relationships in the low-dose and dose-rate region of the dose-response relationship for the induction of cancer. These can be divided into three easily distinguishable groups.

"The first and oldest group holds the LNT model to be the best model for the practice of radiation protection. LNT suggests that each and every ionization increases the risk of cancer and genetic effects, regardless of the total dose. There are extensive data that suggest that this model is not scientifically supported. However, this group advocates the continued use of the LNT model for practical administrative and executive reasons since they view it to be conservative in protection of the public.

"The second group suggests that the data support the fact that the health effects from low doses and low-dose rates are well defined and negligibly small and that the LNT model be replaced by a threshold model. Doses below this threshold should be of no concern for the induction of health effects and should be declared "safe." The strength of this argument is twofold. First, there is lack of evidence of a detectable increase in human cancer incidence in the low-dose region, especially if delivered at a low-dose rate. This observation is supported by a wide range of molecular, cellular, and animal



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