I R P A 10

TOPICAL SESSIONS
Reports of Co-Chairmen for Highlight Sessions

T-21: Lessons from Major Radiation Accidents

Thursday, 18 May 2000

Chair and Keynote: P. Ortiz Co-Chair: R. Ricks

Although the frequency is low by comparison to other industries, the potential for serious health consequences from radiation accidents are high considering the number of fatal accidents in the past fifteen years. It is therefore important to learn as much from these accidental radiation experiences as possible. Lessons learned can be expressed in general terms or through specific medical response protocols. Dissimination of lessons leant from accidents is necessary to improve preventative measures and to assist in the early detection of loss of safety control by supervisors and regulators. The existence of national and international registries on accidental radiation injuries not only allows the preparation of a useful database, but identifies common general factors. On of the perspective goals of such generalizations is the separation of accident types according to the character of the damage, temporal patterns and the magnitude of clinical signs as well as the type and results of therapy. Critical examination of the recorded data and associated general classification can optimize medical care in the future.

While many data bases exist, the IAEA has recently completed development and initial testing of an international reporting system of unusual radiation events (RADEV). RADEV will contain information on occupational overexposures, exposures to members of the general public and those associated with medical diagnosis and therapy. Information regarding the causes and consequences of accidents supported by narrative summaries will be captured in RADEV. Based on information in RADEV, the IAEA can develop training directed to specific problems associated with radiation accidents.

However, data bases are not a substitute for early identification and aggressive medical management of serious overexposures leading to the acute radiation syndrome or acute cutaneous injury. Refinement of existing therapy protocols and the application of emerging ones requires the early involvement of specialists. Decisions regarding movement of patients to special centers must be weighed against mobilizing specialists to in-country locations where victims are hospitalized.

Through continued information sharing specific algorithms can be designed and refined for the medical management of injuries resulting from radiation accidents. Retrospective studies of prior accidents may reveal useful information. In addition to therapy protocols, other useful information includes a determination of the source of the irradiation, detailed circumstances related to each specific accident, and a thorough evaluation of the potential consequences including those of a projected long-term nature.

Others not directly experiencing acute effects, but who may be at some risk, must not be forgotten, including members of the general public, family members, and health care providers. Risk communication to all groups is essential and must include clear, concise information easily understood by the public. Improper approaches regarding risk, particularly those of a scientific nature, often lead to public mistrust. Early conflicting messages usually result in a non-believing public, whose trust is rarely regained. Scientists are often caught in attempts to explain complicated radiation protection principles, ALARA concepts and risk comparison approaches. Risk perception is a very personal matter and it is of great psychological value that individuals become involved in the risk decision process. The inconsistency in recommendations on consumption of contaminated foodstuffs following Chernobyl is an example where the application of ALARA concepts may have failed. Whatever the approach, the intent should be directed to methods leading to (1) dose reduction to the public when contamination is a major potential problem and (2) early aggressive medical treatment of those seriously overexposed.