Emergency preparedness and response – decision-making during a nuclear or radiological crisis

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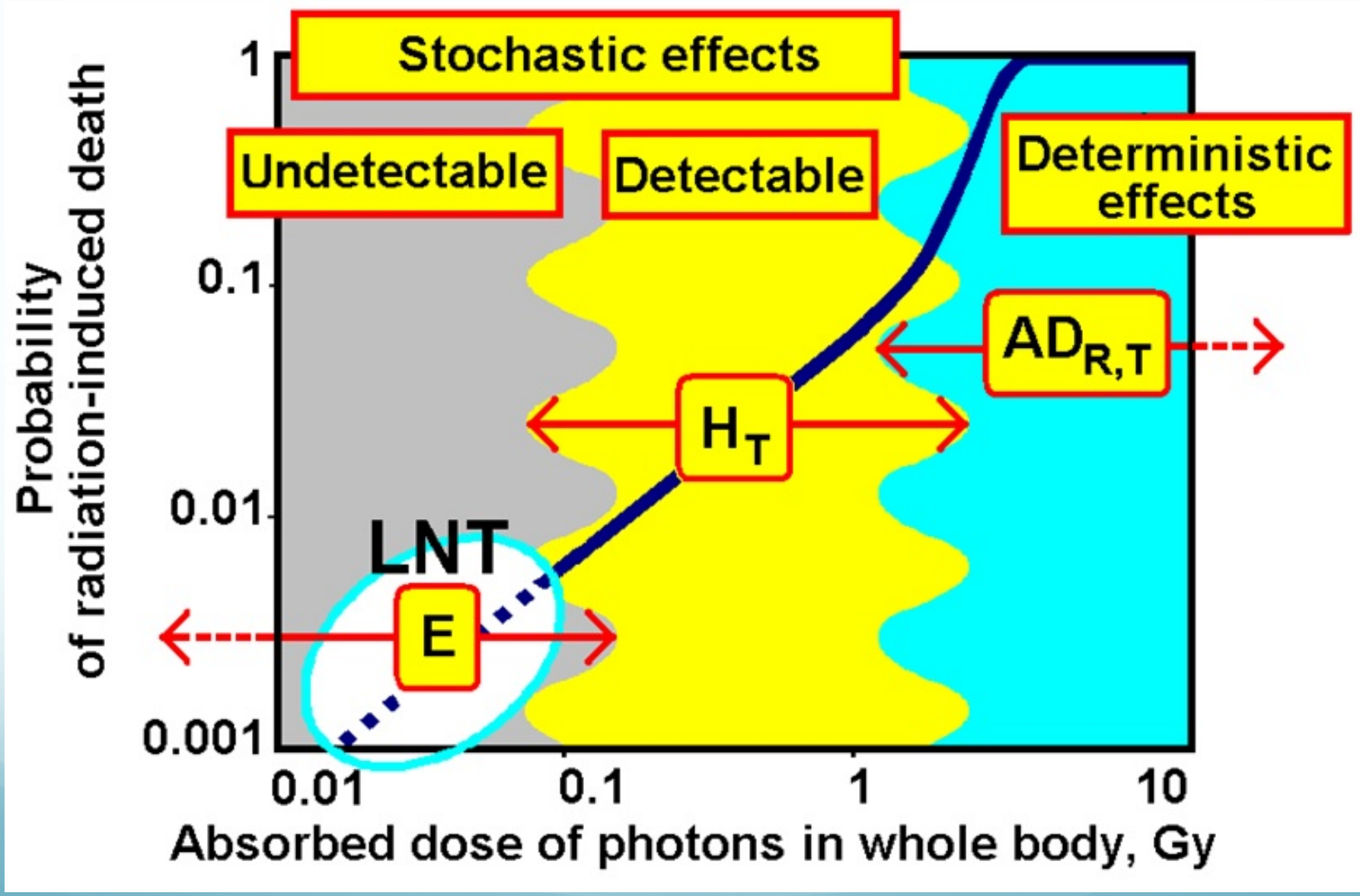
Summary
EPR - decision-making during a NR-crisis

- Radiological aspects – health effects, facts and judgements based on best available knowledge
- Other aspects and constraints – protection strategy and coordination
- Communication - expectations

Radiation induced health effects



Protection Strategy

- What needs to be achieved in response to a nuclear or radiological emergency, from the time the emergency is declared until the emergency is terminated.
- To guide establishment of adequate emergency arrangements
  - Plans, procedures, actions, equipment, tools, training and exercise programmes, evaluations and research
  - Can include pre-decided automatic actions in the immediate acute stage (e.g. NPP) – eliminates need for “decisions”

Basis for Development of Protection Strategy

- Hazard assessment, i.e. consequence assessment for wide range of postulated emergencies
- Inventory of facilities, activities and sources and associated hazards
- Available resources (human, technical, financial) and infrastructure
- Legislative basis, regulations and other relevant documents
- Coordination at all levels

Considerations for Development

- Detailed protective actions for those at risk of severe deterministic effects
- To be followed by range of actions aimed at:
  - Those at risk of stochastic effects
  - Meeting the remaining goals of emergency response
- Need for coordination with neighbouring countries in case of trans-boundary emergency
- Dynamic nature of response
  - Time constraints on decision-making and implementation of actions in an effective manner
  - Processes to be used for adapting the strategy to the actual circumstances of the emergency
- First justify, then optimize

Justification

- **At high doses**
  - Radiological considerations prevail in the decision-making process
- **At low doses**
  - Careful consideration is required with account taken of different radiological and non-radiological factors when making decisions to ensure actions taken do more good than harm

Justification

- Reasons for an option being considered unjustified may include:
  - Severe disruption of normal activities
  - Unreasonable economic burden
  - Greater risk by their implementation than they protect against
    - E.g. evacuation of hospitals without provision of adequate medical care to patients
  - Generation of large volumes of radioactive waste

Unified Command and Control – Coordination

International example – protection of own citizens in an accident country abroad

Communication – Expectations

- IEM on Enhancing Transparency and Communication Effectiveness, June 2012:"*When the communicated information primarily consists of technical data yet does not answer the simple question, 'Are we safe?', it will not be considered by the public to be either effective or transparent.*"
- IEM on Decommissioning and Remediation, Jan – Feb 2013: "*International community should strive to develop practical definition of 'safe' for public communication.*"

International Conference on Global EPR, 19-23 October 2015

Recommendation 1: Defining '*What is safe?*'

"During the conference, participants identified the need for relevant authorities and organizations to respond in clear, plain language to the question of 'What is safe?', based on scientific evidence and reasoning."

"Over recent decades, experts have produced highly detailed criteria which are codified in national and international radiation protection standards. However, their complexity seems to have impeded our ability to respond to simple questions from the public about radiation safety. Not being able to answer these questions would further reduce the credibility, not only of experts, but also of authorities and organizations responsible for protecting the public."

Consequences of not communicating clearly and simply

Lacking clear answers, the public and decision makers may take actions which they believe to be necessary for protection and safety.

Such actions in the past have caused more harm than good, for example:

- Termination of emergency response actions
- Stigma (against people, products etc.)
- Unwarranted voluntary abortions
- Psychological distress
- Unsafe evacuation of patients ...

Finally … the means of communicating with the public have changed …

Summary

- Define the **hazards and consequences**
- Develop a **protection strategy**
- **Coordinate** during preparation
- **Make decisions and communicate** clearly with the public


Thank you for your attention...