Consultancy Meeting: Preparing a Safety Report addressing the UNSCEAR 2012 Report’s implications
5-8 March 2019, Vienna, Austria

Experience from Developing DS 475: Arrangements for Public Communication in Preparedness and Response for a Nuclear or Radiological Emergency
– Need for Placing Radiological Health Hazards in Perspective for Public Communication in Emergencies

Incident and Emergency Centre
• Preparedness and response arrangements for effective communication with the public during a nuclear or radiological emergency

• Objective:
  – Mitigate adverse consequences of an emergency for human life, health, property and the environment.
  – Help reduce public anxiety
  – Reduce the likelihood the public acts in a manner not recommended by an authority.

• Context: Human response to stress/threats
Frequently asked questions

- Is my family safe? What can I do to ensure my family is safe now?
- When will I get sick from radiation?
- Is the contamination dangerous? What could be the consequences for my health?
- What are the possible health effects?
- What do these radiation levels mean for my health?
How do experts usually respond?

It is 10 times higher than the normal background.

In order of magnitude of a dose received during Chest X-ray imaging.

- Assuming that 10 million people in Europe, outside the Former Soviet Union, live in territories with a Cs-137 ground contamination higher than 40 kBq/m² (>1.08 Ci/km²) and that the mortality risk is only half that determined in the Chernobyl region, that is, 17 deaths per 1,000 inhabitants (better food and better medical and socioeconomic situations), up until 2004, we can expect an additional 170,000 deaths in Europe outside the Former Soviet Union owing to Chernobyl.

Thus the overall mortality for the period from April 1986 to the end of 2004 from the Chernobyl catastrophe was estimated at 985,000 additional deaths.
Death toll from Japan nuclear catastrophe could top 500,000

Japan admits that Fukushima worker died from radiation
Ineffective communication consequences

Unwarranted actions taken in the mistaken belief to be enhancing safety:

- Unsafe evacuation and shadow evacuation
- Voluntary abortions
- Rejecting products from affected areas
- Stigmatizing people from affected areas
- Medical examination demands
- Refusal to provide medical care to those in need
Recent lessons identified

Arrangements need to be in place to assist decision makers, the public and others (e.g. medical staff) to gain an understanding of radiological health hazards in a nuclear emergency in order to make informed decisions on protective actions. Arrangements also need to be in place to address public concerns locally, nationally and internationally.

Public concerns need to be effectively addressed in a nuclear emergency. This includes the means to relate measurable quantities (e.g. dose rates) and projected radiation doses to radiological health hazards in a manner that allows decision makers (and the public) to make informed decisions concerning protective actions. Addressing public concerns contributes to mitigating both the radiological and the non-radiological consequences of the emergency.

These arrangements need to ensure prompt explanation of any health risks and possible appropriate individual actions for reducing these risks. Arrangements need to be in place to provide the public with useful, consistent and understandable information throughout a nuclear emergency, including an answer to the public’s principal concern about potential health consequences; and to provide the public with an explanation of the basis for protective action recommendations.

What information is not available. 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.
“Forget the educational messages that we prepared. The public wants to know if it is safe for themselves and for their kids. And, if not, what do they do about it, period. They don’t care what a Sievert is.”

UPMC Center for Health Security Baltimore
April 2018 Consultancy Meeting

- Considered UNSCEAR report’s implications for the draft DS475
- Issue: *Objectively demonstrable health effects* attributable to radiation exposure *communicated in parallel* with *subjectively inferred risks* associated with radiation exposure
  - Such communication caused more harm than good to the people affected.
GSR Part 7 5.72: Putting radiological health hazards in perspective

The government shall ensure that a system for putting radiological health hazards in perspective in a nuclear or radiological emergency is developed and implemented with the following aim:

• — To support informed decision making concerning protective actions and other response actions to be taken;

• — To help in ensuring that actions taken do more good than harm;

• — To address public concerns regarding potential health effects.
How should the proposed system work?

- What was measured? Who was exposed? How were they exposed? What they were exposed to?
- Measuring results or results of dose estimations and its comparison with criteria and need for taking effective protective actions
- Radiation induced health effects that can be attributed to radiation exposure
- Simple and easily understandable message to the public that puts health hazards in perspective
Example system: Design: Appendix/DS 475

- Attributable to radiation exposure on an individual basis
- Precautionary protective actions warranted
- Medical examination and treatment

- Attributable to radiation exposure only as a collective outcome
- Urgent and early protective actions warranted
- Longer term medical follow-up

- Not attributable to radiation exposure
- Apply ALARA as long as protective actions are justified (i.e. do more good than harm)
- No medical actions
Example system: Use and testing

- For national use, taking into account:
  - National and international criteria and the protection strategy
  - Radiation health effects that are attributable to radiation exposure
  - Need for:
    - Easily understandable, scientifically correct messages that address the primary public concerns
    - Need for the system to be tested and validated before use
  - Need for the system to be consistently applied by all those involved in public communication in EPR
    - In preparedness and during the response
UNSCAR report – implications for public communication

• Health effects are attributable to high levels of radiation exposure

• Health effects cannot be unequivocally attributed to relatively low level radiation exposure
  – i.e., levels typical of the global average background levels of radiation

• Incorrect and unwarranted to publicly communicate calculations on inferred health effects used for protection planning
About the use of collective dose for comparison purposes

Recommendation: **avoid use** in emergency exposure situations to prevent contradictory messages to the public

- Complex concept that is not easily translated into plain language
- Notional comparison could be misperceived as an inference, producing confusion, unjustified fear & anxiety
- The estimated collective dose in an emergency is subject to uncertainty
Thank you!