ICRP111 and the reality of Fukushima
- from a clinician's viewpoint -

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My Background

• I was born and raised in Koriyama.
• I live together with wife and twins born in September 2011.
• My background is “Diagnostic Radiologist”.
• I am a clinician.

• I am not...
  - a researcher.
  - professional of radiation protection.
1. To explain WBC results, external dose, etc. to residents.
Consultation-advice on lifestyles.

2. To implement protection measures in collaboration w/ public health professionals (esp. indirect effects).
Two-branches: Explanation and Implementation

- Individual dose (internal & external) has to be explained to each resident the authority. Individuals and authorities should be informed that the dose is process dependent.
  - For individuals, the dose data should be explained based on his/her everyday life behavior in the affected area.
  - For authorities, the dose data should be shown for its distribution w/ the ratio of outliers in the population.

- Identify the physical outcome of RP measures, and work with the directly responsible bodies to improve the situation.
  - Share the information with the regional public health professionals, target the high risk group to appropriate the approach and measures.
  - Through such collaboration, enhance holistic approach in the measures targeting individuals.
A clinician’s dilemma

• Measurement value must be understood by the patient, and be used for improvement, etc.
• Experts need to be aware of the distribution of the values of the entire population when explaining to individuals.

BUT

• No shared knowledge on radiation or among patients or experts.
• Indirect health effect resulting from protective measures (ex. evacuation) were severe; cannot be ignored for public health.
Gap between ICRP 111 and the reality of Fukushima

Is “optimization” implementable?
ICRP 111 and reality in Fukushima

1. Role of “Explainer” not defined in ICRP 111

2. Optimization Process did not function as prescribed

3. ALARA vs ALAP
Implementing Protection Strategies - ICRP 111

Strategies to be implemented by authorities:

- Clean-up of buildings, remediation of soil and vegetation, etc.
- Set up infrastructure to support the implementation of all protection strategies, including self-help strategies implemented by the affected population. (ex. Provide monitoring equipment, etc.)

Strategies to be implemented by the affected population:

- Monitoring ambient dose rates in living places and contamination of foodstuffs
- Evaluating external and internal exposure
- Adapting way of life accordingly to reduce their exposure

Accurate explanation and information sharing through “Explainer” or “Facilitator”

NOT DEFINED IN ICRP 111
Focus on protective measures to reduce individual exposures above reference level

Set new reference level as per appropriate

Three issues → discussed in the next slide
Three Issues:

1. Ambiguity of the definition “Individual dose level,” insufficient sharing of “Number of individuals”

2. Consequences from setting "Reference level"-
   Reality more complex & opaque than a single line.

3. Silence about the individuals below Ref. level
   (The majority in Fukushima)
ALARA or ALAP, that is the question
Desirable “Cycle” in real life

- By ensuring resources for “explaining”, measurement is connected to protection measures.
- Measuring individual dose (including chronological change)
- Persons who have not had measurements may benefit from estimates.
- Authorities
- Input/output
- Resources
- Optimize the individual’s protective measure (may include reduction measure)
- Find out potential measurement needs
- Satisfactory lifestyle
- Achieve balance between perceived “radiation risk” and “returning to pre-accident lifestyle”
- Less constraint/More freedom in life

Cycle

By ensuring resources for “explaining”, measurement is connected to protection measures.

Optimize the individual’s protective measure (may include reduction measure)

Find out potential measurement needs

Satisfactory lifestyle

Achieve balance between perceived “radiation risk” and “returning to pre-accident lifestyle”

Less constraint/More freedom in life
1. “Measurement” has positive value for the individuals
   - Dose can be used to make daily decisions. (what to eat, where to go, etc.)
   - Dose can be utilized to make future decisions.
   - Dose can be used to grasp overall situation.

2. Authorities have multiple roles
   - Need to grasp overall situation (incl. distribution and outlines), for better policy making and information sharing.
   - Provide resources for “Explainers” and measurement. (ex. Counseling opportunity, equipment, etc.)
   - Implement additional RP measures, as necessary.

3. Public health professionals
   - Collaborate with “Explainers” and authorities to improve the overall QOL of the individuals.
Finally, I would like to share a few musings of a clinician. These are not really final yet.