

**Seminar on Fukushima Reconstruction  
hosted by ISTC/STCU**

February 4, 2012

**Panel Discussion:** Speaking towards reconstruction of  
Fukushima Prefecture

**Health Management and Future  
Activities of Fukushima Prefecture**

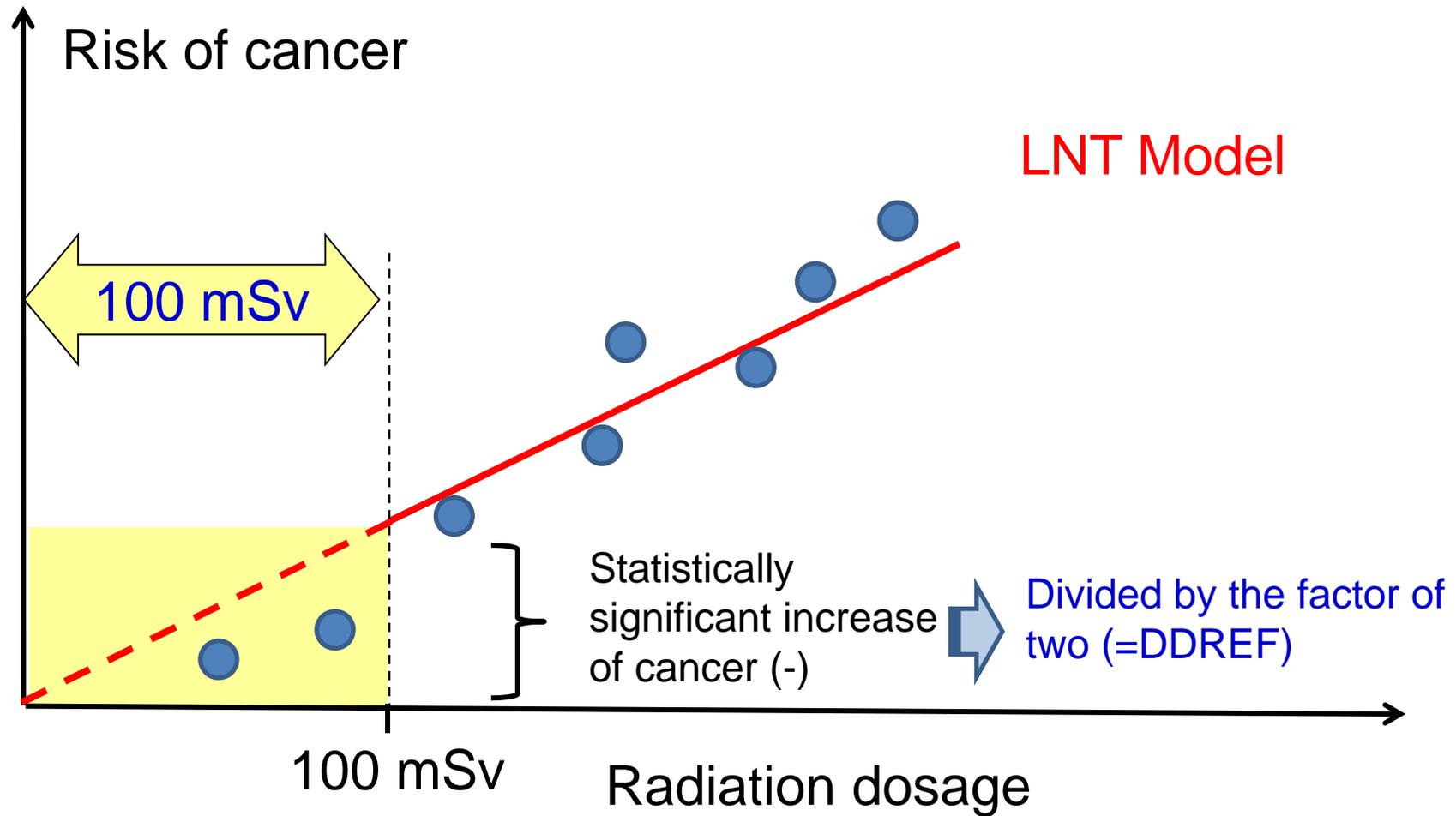
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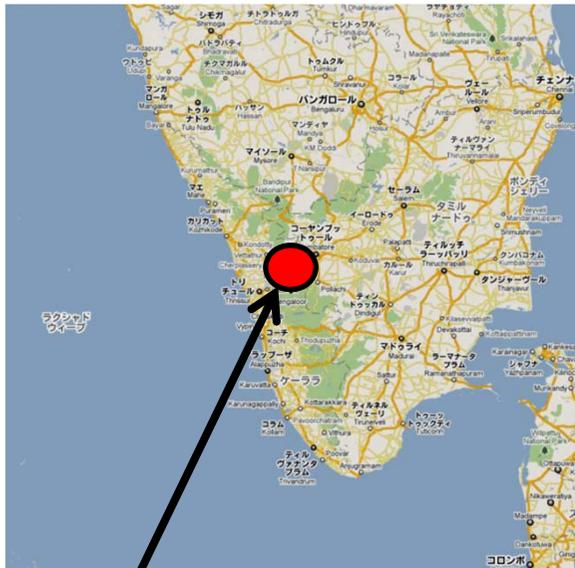
# Radiation-induced cancer risks

## The linear no-threshold model (LNT Model)



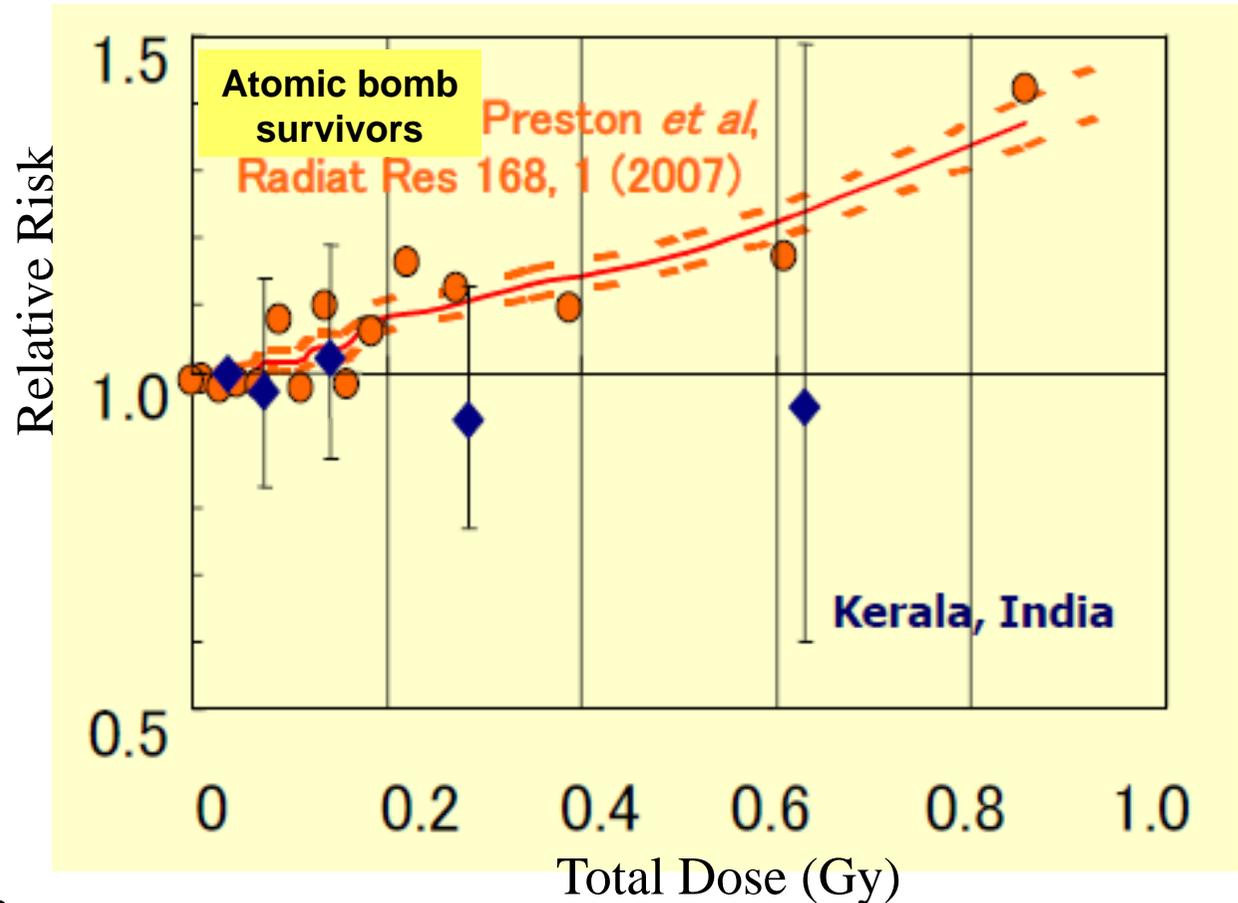
**Assumption:** A risk of cancer may be increased when a man is exposed to even very small amounts of radiation

# Health risks of population in a high natural background radiation area in India



## Kerala, India

Median outdoor radiation levels are more than 4 mSv/year. In a higher area, the highest level is 70 mSv/year.



Nair et al, Health Phys 96, 55 (2009)

“Effects of radiation in the human body” by Kazuo Sakai

# Radiological protection strategies learning from the past experience of Belarus

Reference: ICRP Publication 111 (J. Lochard et al.)

- Implementation of protection strategies
- Justification and optimization of protection strategies
- Changing a decision making process from top-down to bottom-up (from centralization to distribution)
- Transparency of the decision making process
- Principles of resident participation: Participation and coordination among residents, stakeholders, experts, national and local governments
- Direct involvement by residents, experts in the local area and the authorities to manage the situation and public health
- Delegation of authority by national government and provision of measures for its implementation as responsibilities of national and local governments
- Establishment of a recording system for radiation monitoring on individuals, environment, food items and sharing and transparency of the information
- Provision of information to each individual for self understanding and assessment of their situations in order to provide an environment for them to act proactively and continuously towards the reconstruction
- Establishment of a local council and protection measures under a concept of “self-help efforts”

# Activities necessary for health management in Fukushima Prefecture

1. Mitigation of exposures based on ALARA Rules  
Radiation protection for children by decontamination, etc.
2. Health monitoring and management  
Through surveys on health management by prefectural residents and a healthcare program
3. Radiation monitoring by individuals to be actively involved
4. Health promotion activities by residents' participation and sharing of information on radiation risks

# Prefectural people's Health Management (For all prefectural people)

Ascertain radiation dosage (basic data)

## Basic Survey

Subjects: Persons residing in the prefecture as of March 11, 2011  
Method: Self-administered questionnaire  
Content: Record of movements after 3/11 (Assessment of estimated radiation exposure)



Ascertain the state of health

## Detailed Survey

**Thyroid gland test** (conducted sequentially for all prefectural people who are 18 years old or younger (including evacuees to outside the prefecture))

Details: Ultrasound for thyroid gland  
\*Ascertain the current status of entire subjects in approximately 3 years, and the test will be conducted regularly after that.

**Health checks** (by existing methods for regular health checks)

Subjects: Residents in the evacuation areas and persons deemed to require this survey as a result of the Basic Survey  
Details: General health exam + Differential white blood count

Subjects: Residents in other than the evacuation areas  
Details: General health exam

Having health checks at workplaces, or municipal-sponsored health checks and cancer examinations on a regular basis lead to early detection of diseases and implementation of appropriate treatment without delay.

Implement specific health checks for prefectural people who are ineligible for existing regular health checks

**Survey of mental health and life management**  
(Send questionnaire papers to residents in the evacuation zones)

**Survey of pregnant women and new mothers**  
(Send questionnaire papers to those who applied for "Maternal and Child Health Handbook" during Aug. 1, 2010 through July 31, 2011)

Manage the survey data continuously

"Prefectural People's Health Management File"  
(Tentative name)

- ☆ Each individual can record and store the results of health surveys and medical checks
- ☆ Disseminate knowledge regarding radiation



Create a database

- ◆ Utilize it for a long-term care and treatment of prefectural people
- ◆ Utilize the knowledge obtained through health management for future generations

- WBC (Whole Body Counter)
- Individual dose meter

Consultation/Support

Follow-up

Treatment

## Support residents' independence by improving an environment to encourage residents to participate in radiation protection and health management activities

1. Establishment of a radiation monitoring center for residents to understand their situations of exposure
  - WBC: Internal contamination
  - Germanium meter: Food contamination
  - Technologist
2. Establishment of a local council to handle health issues  
Residents' participation in health promotion activities and sharing of the information on risks

# Summary

- Mitigate radiation dosage by decontamination and radiation monitoring considering the followings:  
ALARA Rules, justification and optimization of protection strategies, radiation protection for children
- Residents' participation in a decision making process and coordination among the authorities and experts are important to implement radiation protection and health management, and appropriate activities are necessary to promote the above concepts.
- Establish a radiation monitoring center and a local council to handle health issues.
- Promote health management activities by residents' participation and aim to become a prefecture with the lowest mortality rate of cancers in the whole country by reducing risks of cancers, etc.