

# **A Role for Medical Professionals during a Radiation Disaster: Effective Risk Communication**

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Information and  
recommendation  
differ from  
“specialist” to  
“specialist”

I cannot believe the  
recommendation  
by outsider

Can I continue  
football training  
if I return back  
to hometown?

I simply  
cannot bear  
Cesium

There are  
too much  
information  
of “Bq”, “Sv”

I feel there are double  
standard between Tokyo  
and Fukushima

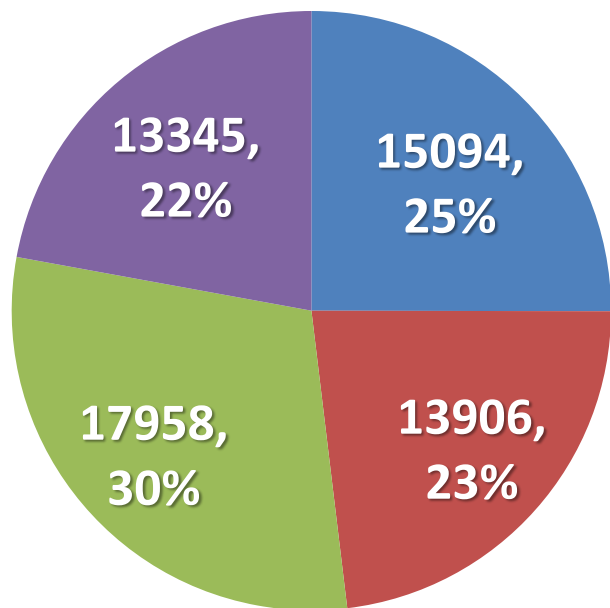
in Fukushima



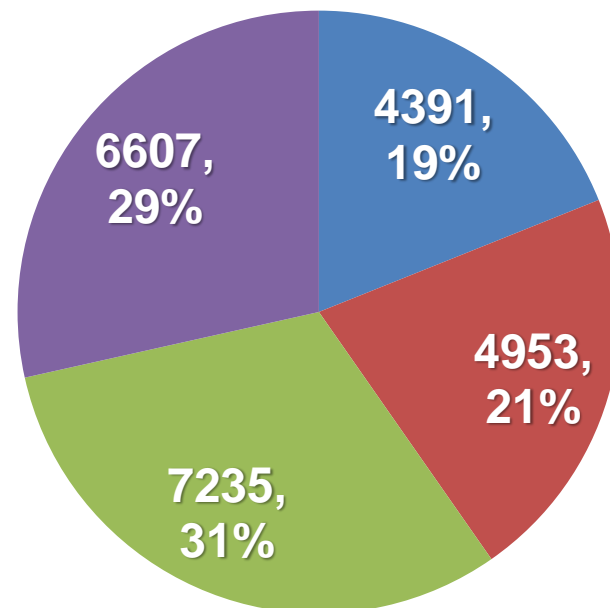
# The Fukushima Health Management Survey

## The Mental Health and Lifestyle Survey

What do you think is the likelihood of **damage to your health (e.g., cancer onset)** in later life as a result of your current level of radiation exposure?



2012 Jan- Oct



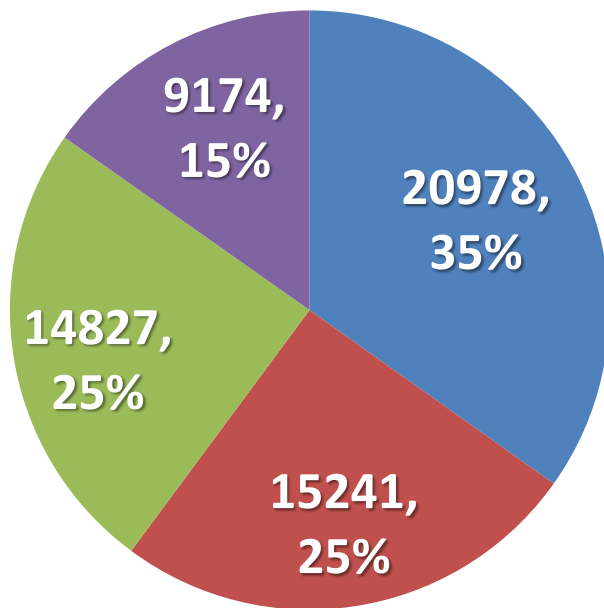
2014 Feb

- Very likely
- Likely
- Unlikely
- Very unlikely

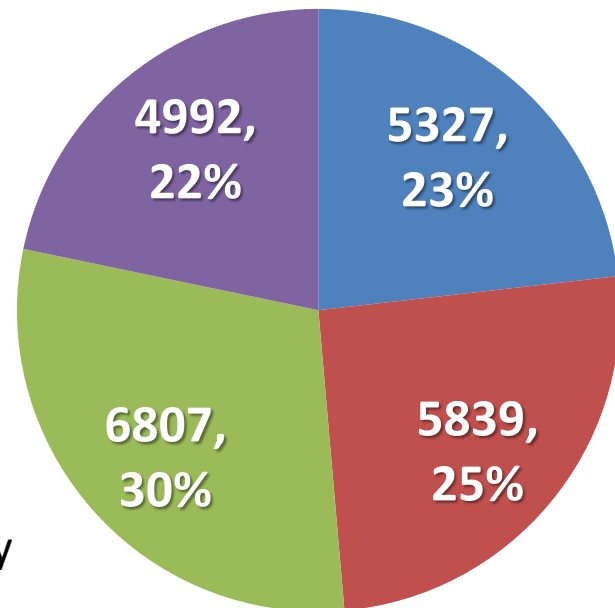
# The Fukushima Health Management Survey

## The Mental Health and Lifestyle Survey

What do you think is the likelihood that the health of your future (i.e. as yet unborn) children and grandchildren will be affected as a result of your current level of radiation exposure?



2012 Jan- Oct



2014 Feb

- Very likely
- Likely
- Unlikely
- Very unlikely

# Personal Problems

- People evacuated from NPP around area.
- Evacuees transferred from shelters to temporary houses. Some of them entered to apartments.
- Evacuees received a certain amount of monetary compensation.
- Local government and many groups had big lectures about radiation knowledge.

,etc....

## Governmental Action

- Problems and anxieties has changed to concrete issues, depend on real life. However, governmental approach should cover all individuals equally.
- Their personal problems remained.

# Health Consultation

- We started health consultation May, 2012 with local governments (public health nurse) of evacuation areas.
- Target: Residents
- We accept all kind of health consultation.
- 3,955 cases (FY2012-2014).





# Problems in the Health Consultation

25 May, 2012- 31 Oct, 2013

- **Physical problems-----1611/2189 cases**

Knee pain, Obesity, Hyperlipidemia, etc.

- **Mental problems-----261/2189 cases**

Insomnia, Alcoholism, etc.

- **Radiation problems/anxieties-----222/2189 cases**

Effects for children, Safety of home-made vegetable, Thyroid cancer risk, etc.

**Radiation anxiety account for  
approximately 10 % of all...**



# Problems in the Health Consultation FY 2014

- Physical problems-----84 %
- Mental problems-----11 %
- Radiation problems/anxieties-----4 %

Percentage of radiation anxiety has decreased

However, most people don't know the actual situation.

Many people don't want to think about radiation recently.



I could not  
tolerate to be  
bothered by  
“Radiation”  
any more

It is too late.  
We already  
irradiated

I'm sick and tired of  
radiation issues.








# Give up Thinking

## Problem based on the Difference of Radiation Risk Perception

- Many people could not update the information and perception at the time of crisis.
- Someone afraid the conflict between individuals induced by the difference in perception of radiation risk ....
- Radiation health issue is under “Taboo”.  
It is difficult to discuss frankly.
- Their radiation anxiety were hidden deeply.

# There is not Unified Criterion of Acceptable Risk

- Less than accepted risk **in usual**. 
- As same as **natural** status. 
- The best balance from a **cost-effectiveness** perspective. 
- Maximum protection: No **possibility** of health effect. 
- Provable risk (security): No **proven risk** of health effect. 

Professionals and citizens have differing criteria of acceptable risk. Worse still, they speak without seeing their own criterion.



**Getting  
Confusing**

# Non-Radiation (Social) Issues

## Reason people don't try to face up to radiation issue

- People consider as man-made disaster.
- So, people have a target of angry.
- They tend to blame everything on that target.

## Reason people hesitate to open up their mind

- Monetary compensation induce conflict between NPP evacuees and others.

## Real problems in refuge life

- Some town had depended social foundation on neighbor NPP located towns.
- There is not football or baseball club in junior high school of my original town.



# Belief Thought Bog

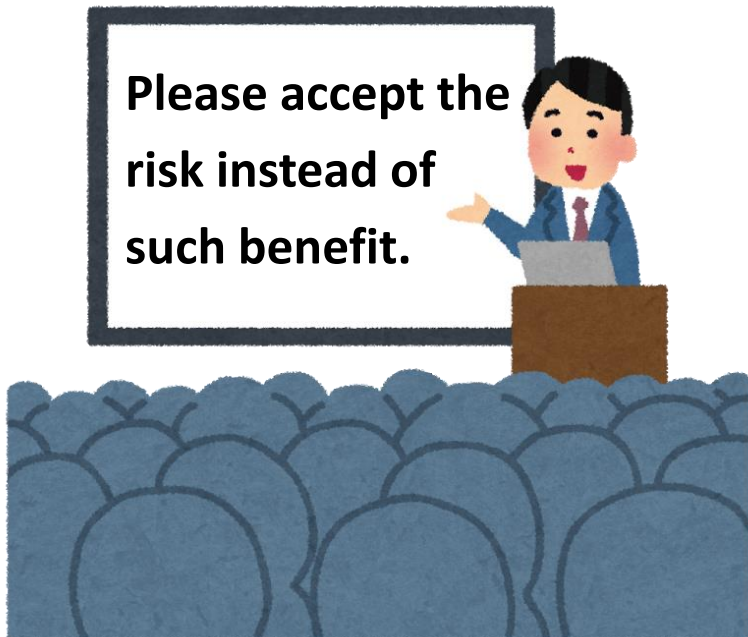
- Some people confuse safety assessment of Fukushima's daily life with energy policy.
- If someone said safety of Fukushima's food or environment depend on the scientific data, some people consider that person as advocate of NPP.
- On the other hand, “humanist” should say “Fukushima's life is danger”.

# Easy-to-Understand Information is not Enough

- Usually, people leave the issue of radiation risk up to expert or government and they don't think about radiation risk by themselves.
- Expert and government prepare and response based on the relations of trust.
- People pay attention to expert or government respond in a sincere manner or not.
- However, confidence crisis came after the disaster.
- Easy-to-understand information is not enough.

# Conventional Risk Communication

- To facilitate the activities of industry/ companies in the surrounding society (citizens).
- Engineers were communicators.



- Society regard such communicators as a tool of industry/ companies.
- Society could not think that engineer/ physicist value citizen's health.

【Mistrust of Expertise】

What is the essential factor of “Trust”?

# So, who can care such situation?

- Principle of “Trust” is  
“To share significant values and goals” .  
(Salient Value Similarity Model)

.....

- Basis of radiation anxiety is health anxiety.
- Goal of medical professional is  
“Resident’s overall health”.
- Medical professionals are the best suited for the communicator of radiation anxieties.



# Medical Professionals as Communicator

- Before the disaster, few medical professionals focused interest on radiation health risk and possibility of radiation disaster.
- Even after Fukushima accident, many of medical professionals think about radiation health risk as out of their field.
- Radiation issues are not someone else's problem.
- Medical professionals had been considered as guidelines for people's action.
- The medical doctor's word is worth more than another person's one.

# How Can We Explain the Radiation Risk to Residents

- Japanese people had not custom to recognize the risk and to choose by themselves.

→ People want to “Zero-Risk”.



- Illustration by familiar scales; Length, Largeness or Weight, etc.
- Comparison with other risk is reasonable to convey the quantitative perspective.
- We sometime discuss about “**Concept of risk**, Rough guideline”. How can we evaluate this situation? Do we need detailed analysis ad infinitum?



# How Can We Explain the Radiation Risk to Residents

## Daily Life, and Real Problems in Refuge Life

- It is hard to realize because of un-sense.
- Japanese people had not custom to recognize the risk and to choose by themselves.

→People want to “Zero-Risk”.



- Illustration by an familiar scale; Size, largeness or weight
- Comparison with other health risk is reasonable to convey the quantitative perspective.
- We should choose example carefully. Some kind of risk is not good example.

- People with basic knowledge of radiation, current situation of Fukushima and concrete problems in daily life is needed.

## 【Important Bridge between Citizens and Experts】

Local key person they are trusted by local community

Local Medical Professionals

Public Nurse

Experts

Local Area

# How to Face to Resident's Anxieties

- Purpose of risk communication is
  1. to support the citizen's understanding of level of risk.
  2. to support the citizen's own decision.
- People need to understand the risk by themselves if they want to feel secure.
- If they leave a decision up to someone, they cannot remove the anxieties completely, and they will peg the blame on someone in future.

But, just because resident own action (study, measurement,,,) does not mean effective

# Only Trusted Supporter can Receive People's Radiation Anxieties

- Residents observe “new supporter(≡ outsider)” is reliable or not, during consultation.
- They could not express their taboo to unreliable “new supporter”
- If they decide “supporter” is reliable, they express their radiation related anxieties.
- It requires high levels of humanity.

Local Medical Professionals Should be  
Front Line of People's Anxieties

- **Radiation problems/anxieties-----4 %**

Problems in the Health Consultation (FY 2014)

- Low Percentage of Consultation about Radiation Anxiety is the Symbol of
  1. “Taboo” and
  2. “Hardness of reliability for Outside Supporter”

## Sharing the Same Values and Trust

### Self Communication

“Awareness-Raising”

Systematic  
Approach,  
Information  
Distribution

Attentive  
Hearing  
and  
Sympathy

- Approve ambivalence and thinking together
- Should be proactive in thinking.
- Provide quantitative analysis of current situation and suggestion as a healthcare professional.

# More than Attentive Hearing and Sympathy

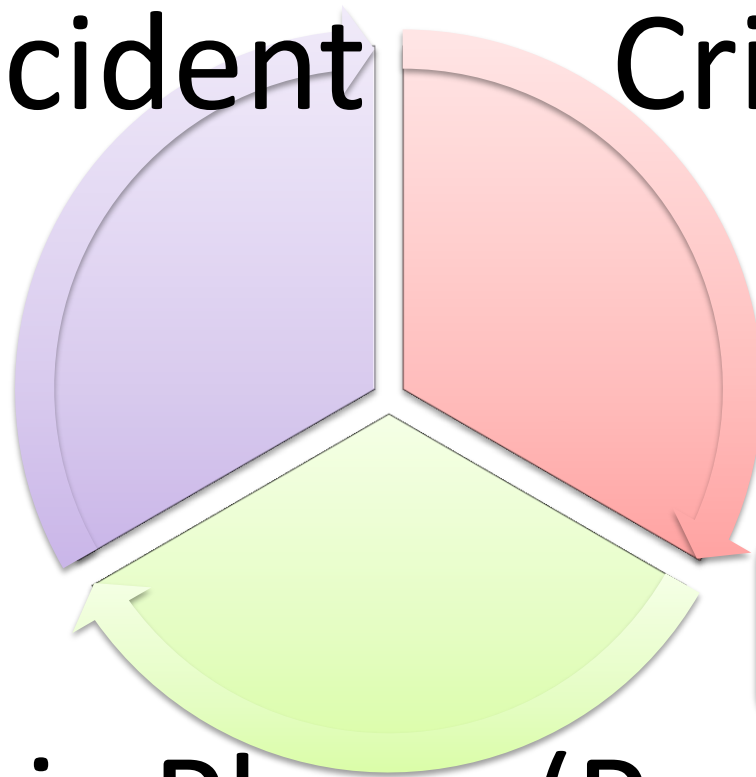
# Our Social Approaches

- Individual health consultation  
(3,955 cases, FY2012-2014)
- Small group discussion with evacuees or residents (specific group; young mothers, etc.)
- Public nurse support
  - Education
- Training the local communicators  
→ Trusted information source
- Training the local health consultants  
(medical professionals)



# Before Accident

# Crisis Phase



## ■ Strengthened civil society

### ■ Not to ignore the risk

What is radiation

Can we accept the risk of nuclear accident?

Other risks in our life

For the Own  
Community

## ■ Prospective information under unclear vision

### ■ A two-alternative question

Life-or-death

Evacuation or not

Scientists should decide  
in unclear situation  
/To All

# Chronic Phase (Post Crisis)

## ■ Correct wrong perception depend on reliable information

### ■ Concrete and personalized question

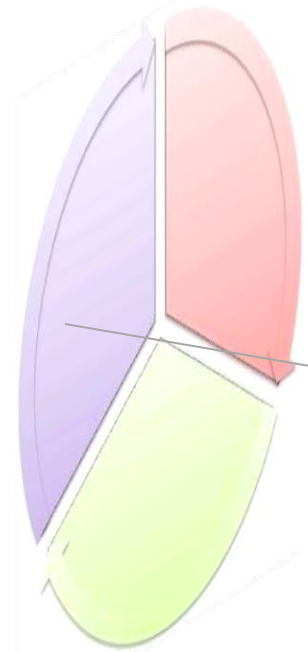
Current safety of local foods (even tested foods)

Air dose rate of my garden is  $0.25\mu\text{Sv/h}$ ,,,It is higher than decontamination level,,,

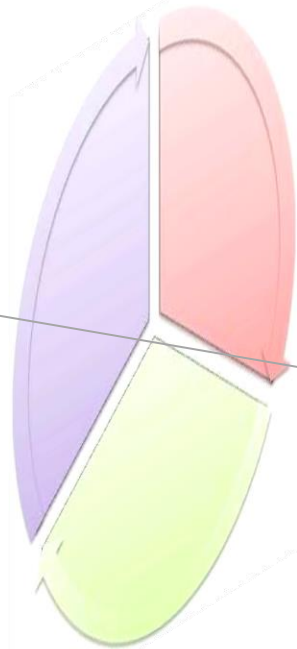
Current risk of airborne Cesium

Small Group/ Individuals

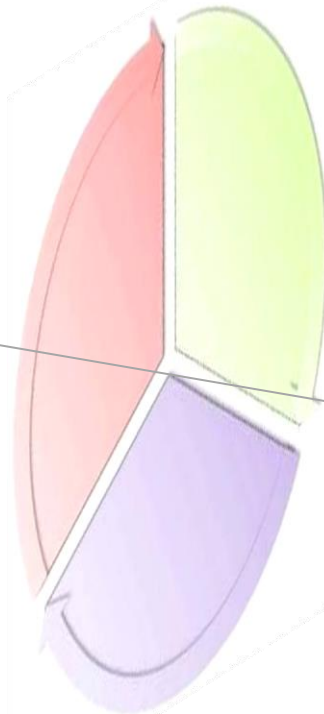
# Various Risk, Various Phase



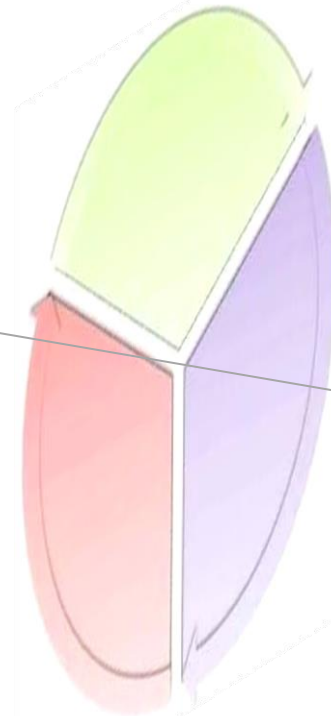
**Flood**



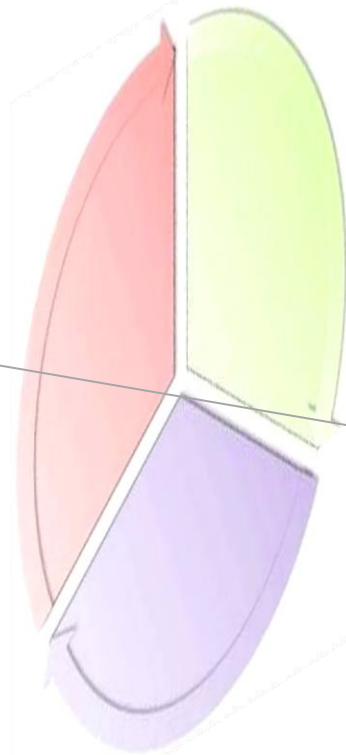
**Radiation  
Disaster**



**Snow**



**Volcanic  
Eruption**



**Global  
Warming**

**In Fukushima**

# Summary and Future

- Purpose of risk communication is
  1. To support the citizen's understanding of level of risk.
  2. To support the citizen's own decision.
- Communication pattern has changed depend on phase
  - Crisis → Post Crisis → Before Accident
- Medical professionals are the best suited for the communicator of radiation anxieties.
- Being an expert during a crisis is much more than “Delivery Information”/ “Attentive Hearing and Sympathy”.
- Each other's criteria of acceptable risk should be respected.
- Total support would be essential.

It requires high levels of **humanity and liberal arts**