

Health Risks and Values: Support for Evidence- and Norm- Based Decisions

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* This presentation reflects the presenter’s opinions and does not represent the official view of any organization.

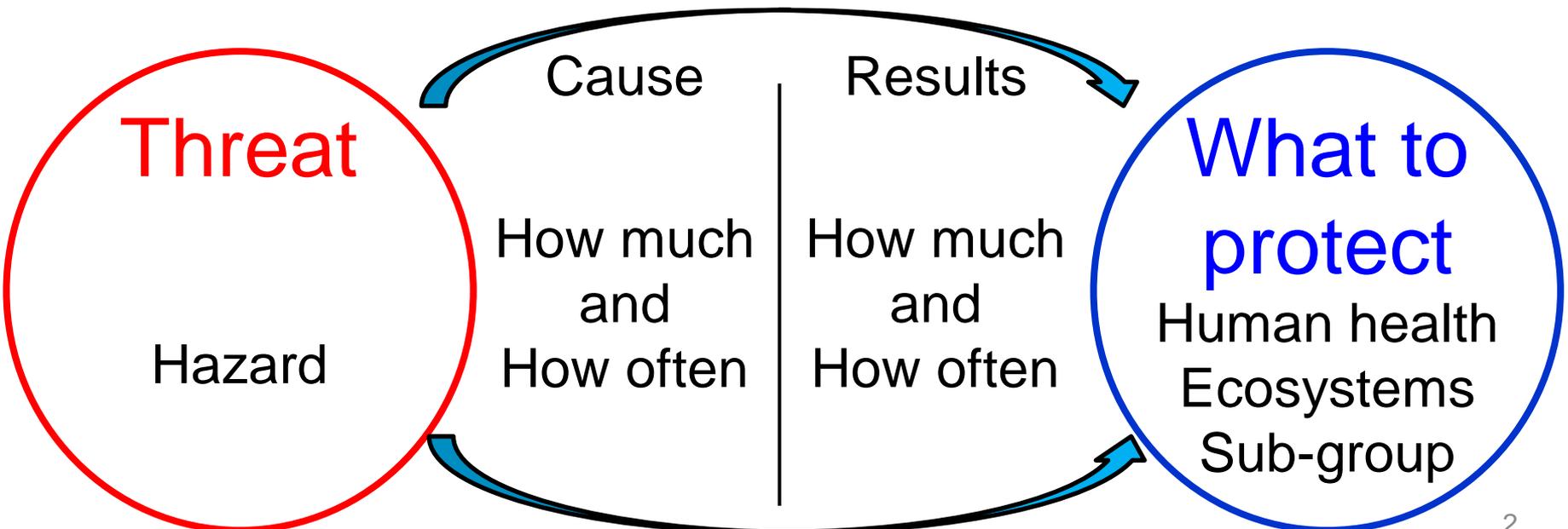


Risk science and risk concept

◆ Risk science (The Encyclopedia of Risk Research, p.4)

“Risk science can be defined as aggregate of various academics related to individual and social decision-making regarding risk.”

◆ Common point in risk concept (The Encyclopedia of Risk Research, p.6)



Comparing risks

- ◆ There are various types of risks in the world. Avoidance of one risk may increase other risks (i.e., risk trade-off).
- ◆ Under limitations of time, money and measures, we hope to reduce various risk as much as possible. (This does not mean that we should discuss only cost-effectiveness.)
- ◆ Risk science enables us to compare various types of risks. In particular, an important technique for individual and societal decision-making is multiple-risk comparison using the same indicator.

Effective dose: estimation in UNSCEAR

Effective dose at 1-year old at disaster

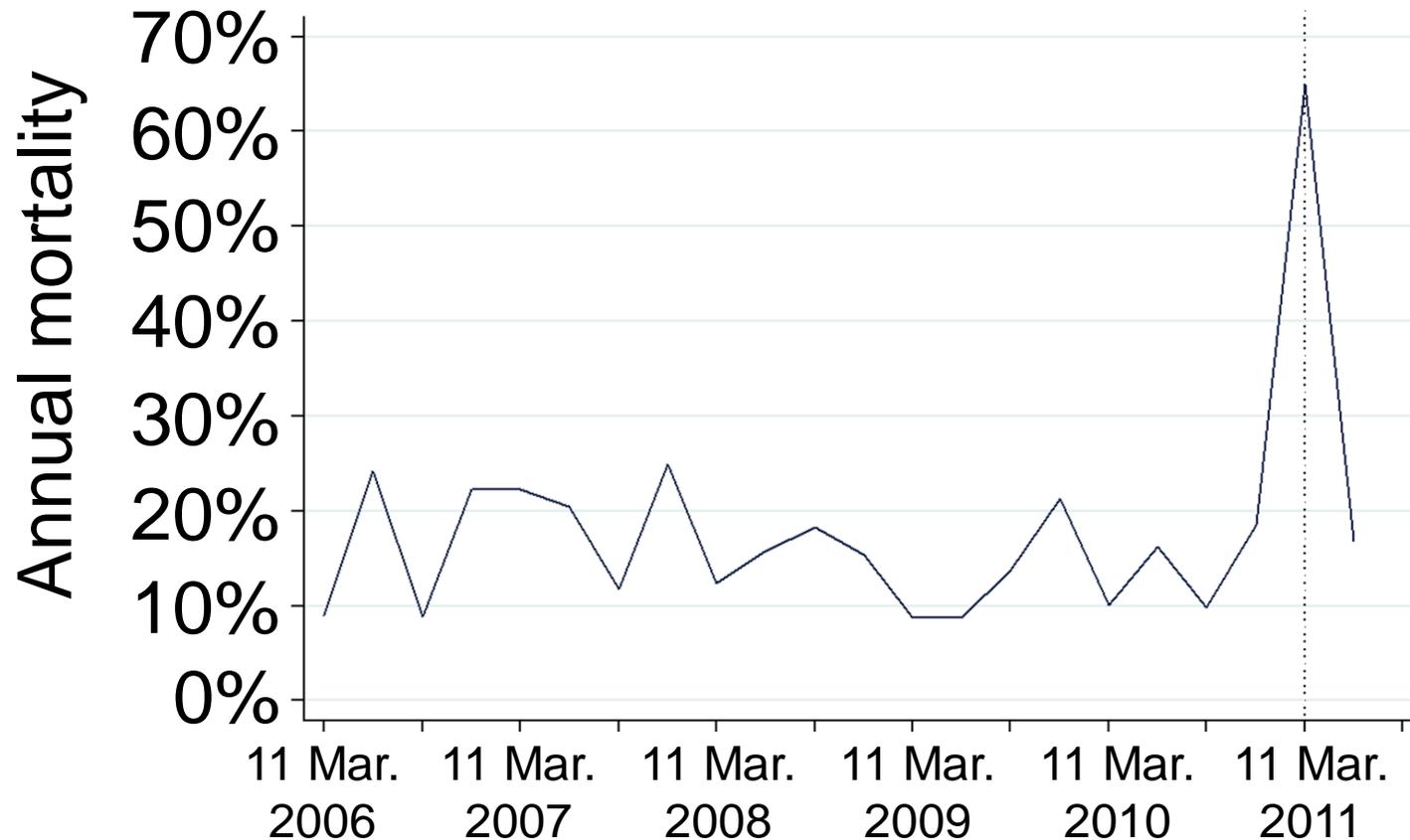
	1-year exposure (mSv)	Lifetime exposure (mSv)
Precautionary- evacuated settlements	1.6~9.3	—
Deliberately-evacuated settlements	7.1~13	—
Other Fukushima Pref.	2.0~7.5	2.1~18

*Natural background radiation (lifetime): approx. 170 ± 80 mSv

No discernible increases
in heritable effects and cancer incidence.

Other effects: nursing home evacuation

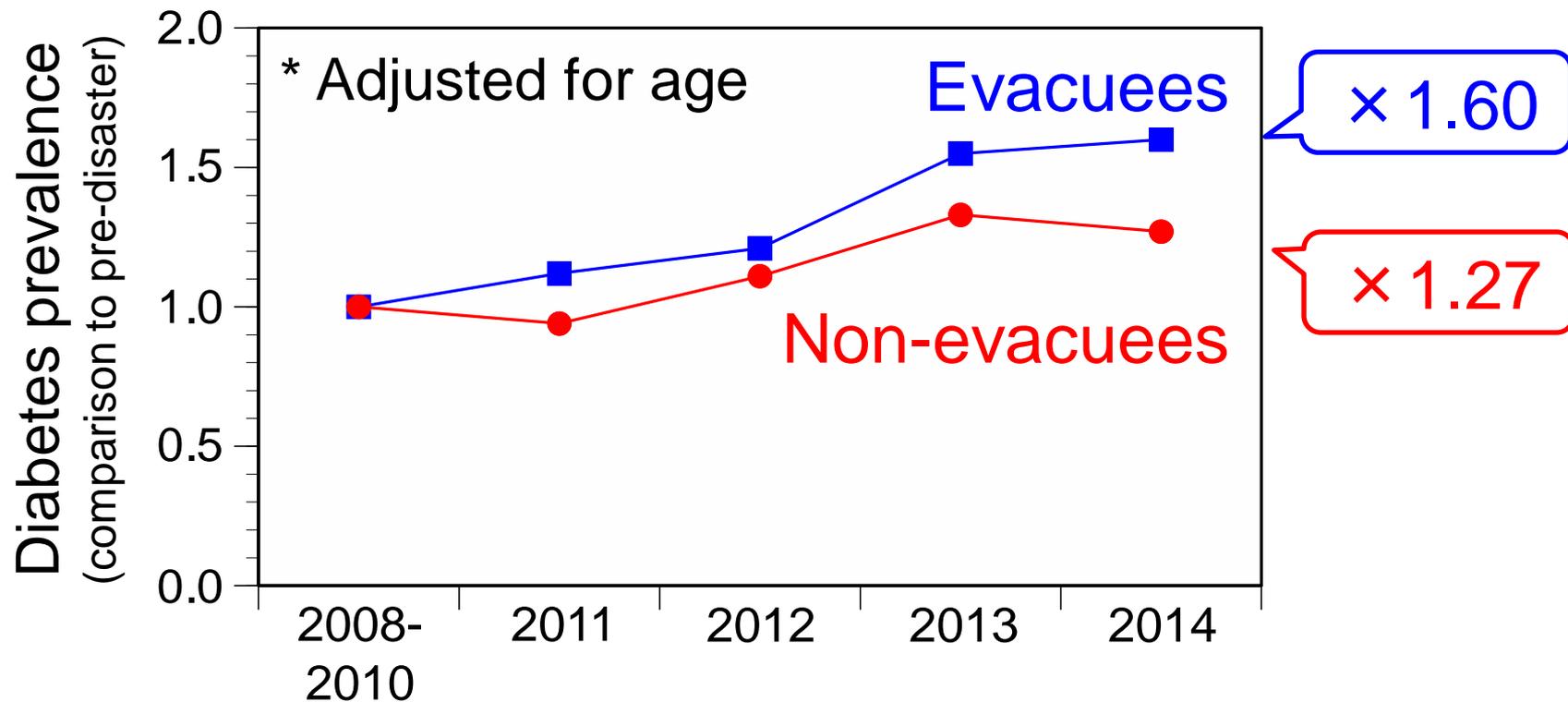
Participants: nursing home residents in Minamisoma City



Mortality rates among nursing home residents increased to 2.7-fold after evacuation.
(NOT direct death due to disaster or radiation)

Other effects: diabetes

Participants: participants who have public health checkups in Minamisoma City and Soma City

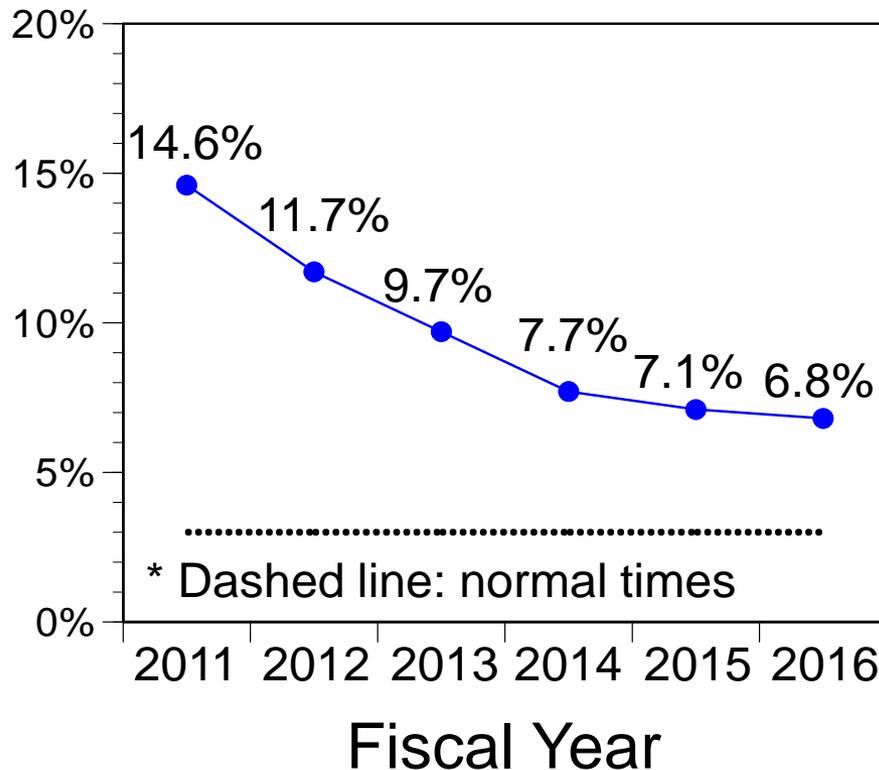


Diabetes increased to 1.6-fold among evacuees after the disaster, possibly due to changes of lifestyle etc. (NOT direct effect of radiation)

Other effects: psychological distress

Participants: citizens in 13 municipalities including evacuation order areas

Prevalence of distress (K6 \geq 13)



K6 items (Kessler et al., 2003)

0: never ~ 4: all the time

“During the past 30 days, about how often did you feel

1. Nervous
2. Hopeless
3. restless or fidgety
4. so depressed that nothing could cheer you up
5. that everything was an effort
6. worthless?”

A cutoff score of K6 \geq 13 was regarded as psychological distress

Psychological distress increased after the disaster.
(NOT direct effects of radiation)

Which indicators be applied

◆ Mortality rate

…It may be a social consensus that “low mortality rate” is a good thing. This does not reflect length of lifetime (e.g., “10% mortality rate in 1 year” vs “30% mortality rate in 30 years”).

◆ Loss of life expectancy

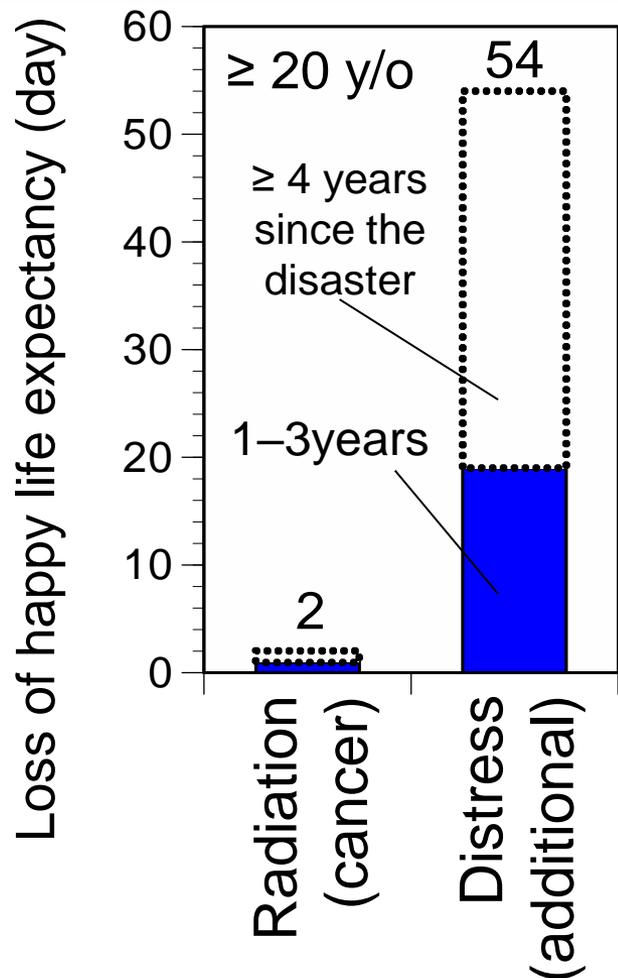
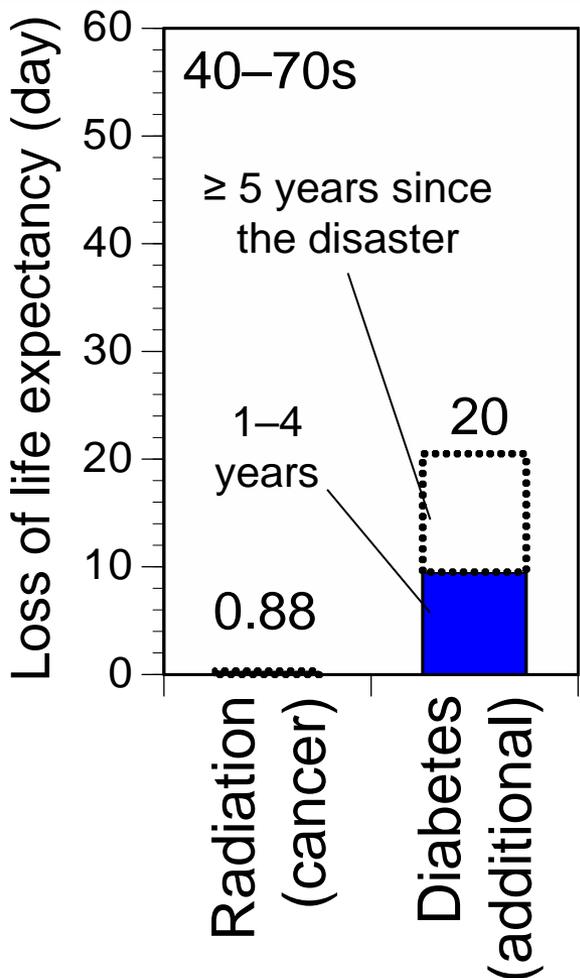
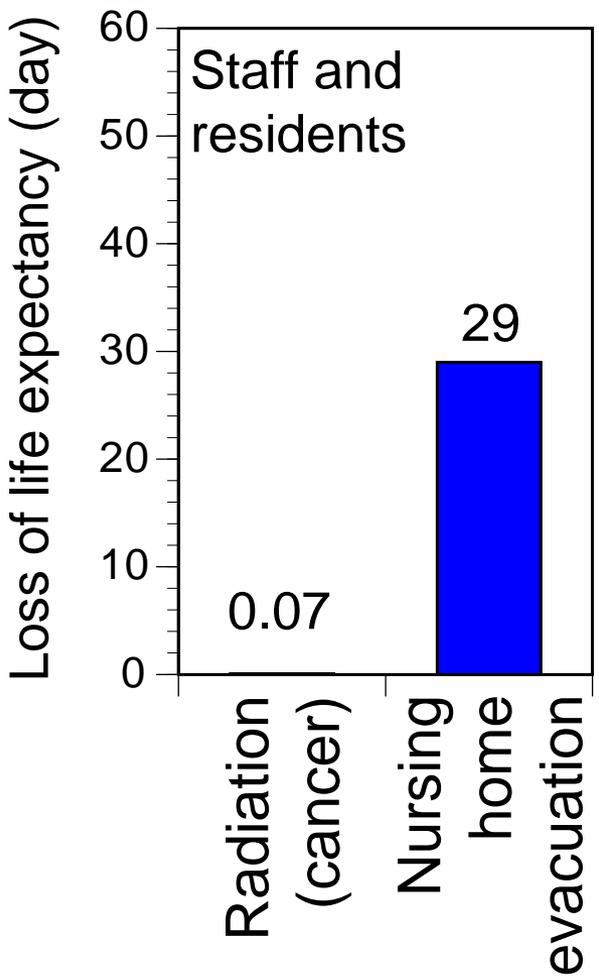
… This can be supported from “health-maximization ageism (efficiency)” and “fair-innings ageism (equity).”

◆ Loss of happy life expectancy

…This aims “maximization of lifelong happiness.” This is based on belief that it is important to build a happier society.

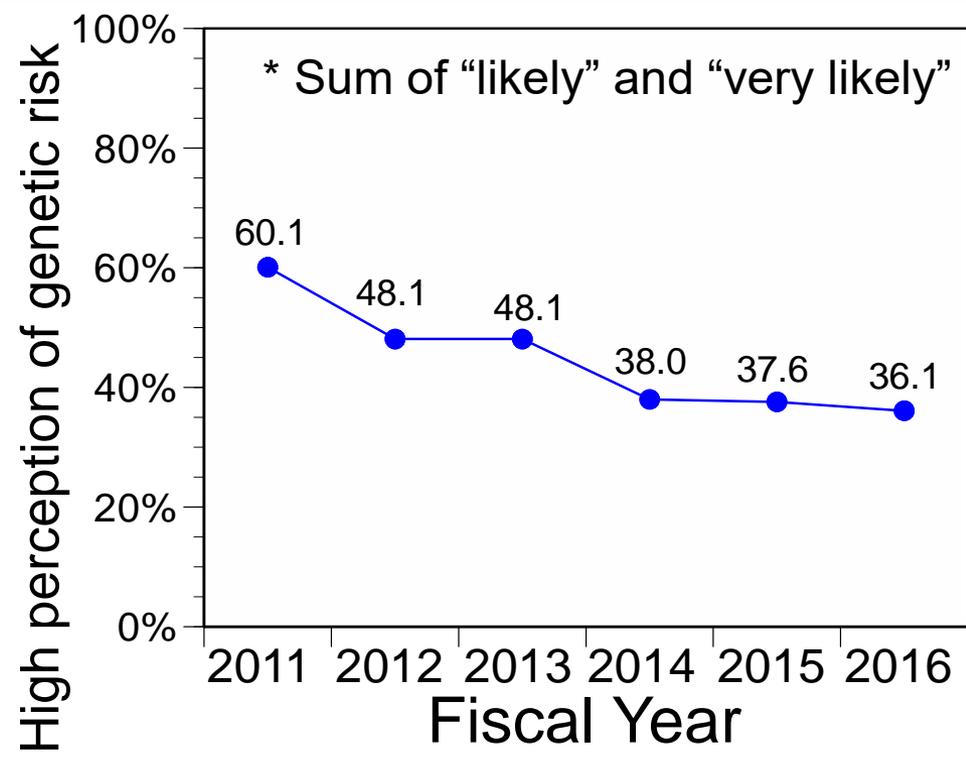
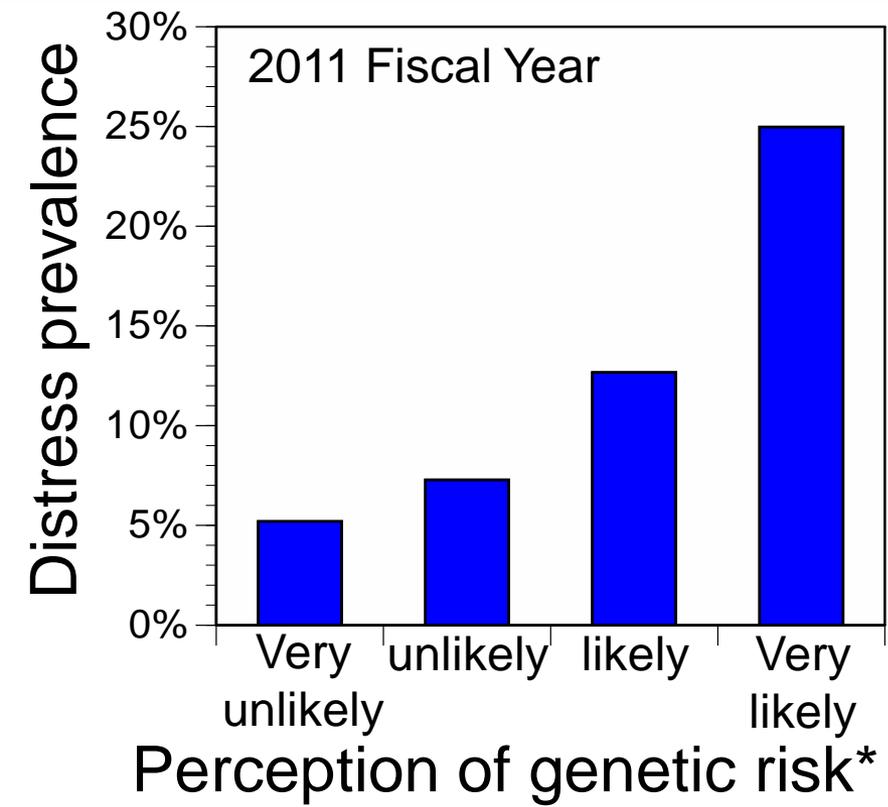
A question “which indicators should be used?” ultimately corresponds to social values of “what kind of a world we want to live in*.”

Comparison of risks after the disaster



Nursing home evacuation, diabetes and distress are more serious risks than direct effects of radiation, from the view point of life expectancy and happiness.

Human dimension risk: stigma



*Responses to "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?"

Distress strongly associated with genetic risk perception.
High anxiety has been reducing, but still exceeds 30%.
Likely linked to a feeling of remorse and discrimination.

Human dimension risk: right to freedom

Royal Society Report (referred as a [basis of 20 mSv/y](#))

“The imposition of a continuing annual risk of death to the individual of 10^{-2} seems unacceptable. At 10^{-3} it [may not be totally unacceptable](#) if

- the individual knows of the situation
- enjoys some commensurate benefit
- and everything reasonable has been done to reduce the risk.”

◆ This was established from a [paternalistic perspective](#) and justified from the balance between freedom and [unacceptable risk](#).

◆ Some people emphasize avoidance of radiation risk and others prefer to benefit by returning home (in fact, some returnees' health may be improved). [Society should respect both value systems](#).

Human dimension risk: ethics

- ◆ Many surveys and studies have been implemented. Most aims to promote physical, mental, or social health among the affected people.
- ◆ Regrettably, surveys/studies themselves have partly injured affected people.
- ◆ Surveys/studies after disasters should serve for affected people.
- ◆ Surveys/studies should be carefully and ethically designed to provide benefits to affected people. **Society must share aims of surveys/studies.**
- ◆ Such ethical issues are still present and the recognition is not well shared in society.

A case: thyroid examination screening

Screening is not effective for reducing mortality.

Mortality

- + Early diagnosis may reduce an insignificant level of mortality.
- + Suicide rate may increase after the diagnosis.

Early diagnosis may reduce disease complications, despite lack of evidence.

Physical aspects

- + Patients cannot experience advances of medical treatments.
- + Screening can increase a sickness- or disability period in lifetime.

Screening can pose social disadvantages in employment, insurance, and marriage.

Socio-psychological aspects

- + Some subjects may reduce anxiety, and others may increase distress.
- + Individual monitoring (not as recommended) can support subjects with strong anxiety.

The information may be expected in public.

Evaluation of radiological effects

- + This is not a benefit for subjects.
- + Screening can disturb or mask the radiological effects on cancer.

Judgements of the balance between benefits and harm depend on their values and norms.

Issues after disasters

Radiation

Decon-
tamination
waste

Economic
loss

Dis-
employ-
ment

Diet

Physical
activity

Anxiety

Family
separation

Community
disruption crisis

Obesity

Remorse

Discri-
mination

Distress

Lifestyle
disease

Nursing
care

Life plan

Right to
freedom

Happiness

Pride

Disasters totally affect life and well-being.
Not only “radiation”, “physical or mental health” but
also “social health” issues.

How to face risks

- ◆ What we expect is not a society just with low mortality or low disability.
- ◆ We have fundamental beliefs that we want to live in a society with high well-being and prides.

“They are not about safety as such, but about much larger questions of **what kind of a world we want to live in.**” (Select Committee on Science and Technology, 2000)

- ◆ How to manage or face risks is a problem of values and norms.
- ◆ Here, we should always pursue “**what we want to protect**” and “**what kind of evidence and norm can support decisions.**”

Toward evidence- and norm-based decisions

- ◆ Revision/prioritization of surveys/studies
- ◆ Confirmation of ethics and share of values
- ◆ Revisiting roots of norms
- ◆ Accumulation of case surveys/studies regarding dialogues and co-creation

Society

Residents

Experts

Dialogues/co-creation

Company

Government

Surveys/
studies

- ◆ Share of aims of surveys/studies
- ◆ Implementation of evidence- and norm-based measures
- ◆ Advancement of measures involving various stakeholders
- ◆ Engagement in a world we want to live in