Current Activities:
Risk Communication and Radiation Safety

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Today’s presentation

- Lessons learned from various IAEA communication activities with stakeholders
- IAEA risk communication based on scientific evidence and international safety standards
- IAEA communication principles in radiation safety, message structure, tools and channels
- Hands-on examples
Risk communication and radiation safety: What are the issues?

- System of radiation protection is said to be too complex
- People tend to be afraid of the radiation because they cannot detect it with their own senses
- Scientific and technical information is often misinterpreted or unconsciously biased
People tend to:

- weigh evidence according to how a causal explanation fits rather than how much scientific data supports it
- seek confirmation of what they already believe in
- perceive risks through their knowledge of science
- follow group thinking which can affect their own decision-making
- follow their socially embedded values and beliefs

Experts:

- use words risk and safety differently from everyday understandings by non-experts

Public understanding – one of the challenges in radiation safety
International radiation protection standards establish criteria to protect the public without unnecessarily restricting uses of radiation that benefit society.  

A need to take into account when considering protective measures in the region of low doses.
Risk communication and radiation safety: Lessons learned by IAEA

Challenge of communicating concepts based on international standards to be heard and understood

- Precautionary principle?
- 100 mSv (low dose region)
- 1 mSv (public dose limit)
Scientific reports on effects of radiation

Recommendations for protection

IAEA establishes or adopts safety standards for the protection of health and to minimize the danger to life and property.
IAEA role in communicating radiation safety: based in Standards
IAEA principles in risk communication in non-emergency situations

- Clarity
- Accuracy and scientific soundness
- Credibility
- Trust
Structuring the message:

Lessons learned

- Audience concerns
- Audience knowledge about the subject
- Appropriate channels and limitations
- Appropriate visuals
- Personalizing messages
- Plain language
Communicating with IAEA stakeholders: Who are they?

1. Governmental/regulatory body representatives
2. Registrants and licensees
3. Workers
4. Patients
5. Members of the public
6. Media
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IAEA communication channels

1. Website: iaea.org
   - 650,000 monthly views

2. Social media: FB, Twitter, and LinkedIn
   - 530,000 followers

3. Newsletters:
   - RPOP, ORPNET, 3 Webinars
   - 11,000 subscribers

Over 1 million people through IAEA channels
IAEA communication tools

1. Web articles
2. Videos
3. Outreach materials
4. Webinars
5. In-personal workshops

Focusing on online activities
- most people access information firstly online
IAEA communication activities:
Topics

Dissemination of topical information in radiation safety in the areas:

Radiation protection of the public
- Examples: radon, non-medical human imaging, food and drinking water, consumer products

Radiation protection of workers
- Examples: female workers, workers in NORM industries, workers in industrial radiography, aircrew, workplace monitoring, individual monitoring

Radiation protection of the patients and caretakers
- Examples: radiological imaging, radiotherapy, nuclear medicine, image guided interventional procedures, dentistry
The most popular tools: Videos

- Selected topical areas in radiation safety
- Based on the safety guidance
- Disseminated through website, YouTube and mainly social media
- Reach up to **100 000** views in a week
The most recent video:
Radiation in Veterinary Medicine

- A new safety report to be released
- Video will be used for the promotion of the release
IAEA communication activities

BSS Factsheets

• Basic Safety Standards Factsheets
  available for free download

• Factsheets focusing on public, medical, and occupational exposure to radiation are associated risk.

What do I need to know?

- Radiation protection is widely used in medicine, to treat cancer patients.
- People are exposed to radiation from the sun, and from exposure to radon gas.
- Radiation exposure is associated with increased risk of cancer.

Why are they important?

- Radiation sources are widely used in medicine and to treat cancer patients.
- People are exposed to radiation from the sun, and from exposure to radon gas.
- Radiation exposure is associated with increased risk of cancer.

What should I do?

- Read the Factsheets for Decision Makers.
- Find out more about radiation protection in medicine.

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Examples of IAEA communication activities

✓ Dissemination of topical information in radiation safety: Radiation protection in pregnancy

✓ Support for Fukushima Prefecture in information dissemination

✓ In-person Workshop on communication and consultation with interested parties
IAEA communication activities: Radiation protection in pregnancy

What was the trigger?

• In 2018, almost **33,000** people visited the webpage with the IAEA guidance for pregnant patients and health professionals in a form of Q&A.

• Patients and health professionals also contacted the IAEA directly – potential lack of information and uncertainty about particular exams.
IAEA communication activities: Radiation protection in pregnancy

• How were the messages structured?
  – Without negative connotations and reducing the alarming language
  – Without using complex scientific concepts but still accurate
  – Using plain language to the extent applicable
  – With links to further information and literature if needed
  – Based on the dialogue with Member States

• To whom?
  – Not only to medical professionals but also for the patients
• Video for health professionals and patients
  – Plain language but information useful also for health professionals
  – Short – less than 2 min
  – Viewed more than 70,000 times
  – Dissemination mainly through social media
IAEA communication activities: Radiation protection in pregnancy

- Poster for patients in waiting rooms
- Call for translations – within one year translated into 25 languages as a response by Member States
IAEA communication activities: Radiation protection in pregnancy

• Webinars for health professionals (and interested members of the public)

• One hour lectures with experts on optimization of radiation protection of pregnant patients

• People from 60 countries joined live and many more watched the recording
IAEA communication activities: Fukushima Prefecture information dissemination

- Part of the IAEA-Fukushima Prefecture cooperation
- Complementing existing activities in remediation and monitoring in Japan
- Providing immediate assistance and support that directly benefit those living in the Prefecture
Cooperation between the International Atomic Energy Agency (IAEA) and Fukushima Prefecture and activities undertaken by Prefecture authorities following the accident at TEPCO’s Fukushima Daiichi Nuclear Power Plant.

To support ongoing protection of people in Fukushima Prefecture after the accident in March 2011, the IAEA provided assistance. Prefecture in three areas—radiation monitoring and management of radioactive waste. (See IAEA, 2017). Benefiting from the cooperation activities in these areas.

**Radiation Monitoring**

- The IAEA provided advice to Fukushima Prefecture on radiation monitoring and the application of mapping technologies, including use of radiation data from automated aerial vehicles.
- The IAEA provided advice to the Prefecture on a long-term radiation monitoring program to review the effectiveness of countermeasures addressing issues related to the timber industry and the radiological impact of forest fires. The IAEA also provided expert advice on the Development Sustainment Rehabilitation Model Project.
- The IAEA provided advice to the Prefecture on the presence of radiocesium in wildlife—bears and Asian Black bear.

**How Prefecture authorities obtain information on forest and forest areas**

- From fixed monitoring stations and running mobile monitoring teams using cars and buses equipped with gamma-ray spectrometers and other monitoring equipment.
- Forest fire surveys, with checks from the Prefecture.
- Car borne surveys are used on roads. Forest fire surveys are used as open areas.

**What can you find here?**

- The trend in the decreasing dose rate.
- The method for measurement.

**What about forest fires?**

Prefecture authorities have determined:

- Only small amounts of radioactivity.
- Only a small increase in air dose rate.
- Radiation impact on the population.

According to Fukushima Prefecture’s data, about 90% of radioactivity in forests is now in the soil (mostly in the top 5 cm) and a further 7% in the forest litter; this means only 3% in trees.

**Long-term monitoring of radioactivity**

The IAEA provided advice to Prefecture authorities on establishing forest forest fire monitoring sites and the application of mapping technologies, including use of radiation data from automated aerial vehicles. The Prefecture has established an extensive forest fire monitoring and mapping program, including use of fixed monitoring stations and running mobile monitoring teams using cars and buses equipped with gamma-ray spectrometers and other monitoring equipment. The Prefecture authorities carried out measurements of radiation and radioactivity on forest and forest litter.

- Binding radioactivity
- Clay minerals in forest soil bind radioactivity, so there is now transfer to vegetation, including trees, according to measurements by the Prefecture.

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**Management of radioactive waste generated from remediation activity in Fukushima Prefecture**

In order to quickly decrease the exposure of the public to radiation, Fukushima Prefecture authorities undertook decontamination and remediation activities in the immediate aftermath of the accident. According to Prefecture records, this activity has generated 6 million m³ of radioactive waste, as of September 2017. To protect the public and the environment, the decontamination set up temporary storage sites throughout the Prefecture to safely keep the waste until the interim Storage Facility is available, and while its radiotoxicity is reduced due mainly to natural decay.

Waste in temporary storage sites will eventually be safely retrieved and transported to the interim Storage Facility within the Prefecture, and ultimately to a disposal facility outside the prefecture. Some of the radioactive waste does not follow this process but is incinerated, which decreases its volume. The radioactive waste product of the incineration will also be moved to storage and ultimately to disposal.

**Monitoring of radiocesium**

The IAEA provided advice on the uptake of radionuclides by forest and forest litter. Prefecture experts feeding habits, as well as the seasonal changes in radionuclide distribution in the forest ecosystem.

**What was the IAEA’s assistance under the cooperation activities?**

- Radiation monitoring and the application of mapping technologies, including use of radiation data from automated aerial vehicles.
- Long-term radiation monitoring.
- The development of a Sustainable Rehabilitation Model Project.
- The presence of radiocesium in wildlife—bears and Asian Black bear.

**How did radionuclides move?**

- Vegetation and soil.
- Forest fire surveys, with checks from the Prefecture.
- Car borne surveys are used on roads. Forest fire surveys are used as open areas.

**Change in radionuclide distribution in the forest ecosystem**

2011

2016

IAEA communication activities: Fukushima Prefecture information dissemination
In July, a seminar on capacity building in communication and trust-building for officers in charge from the Fukushima Prefecture.

Purpose: To have a common recognition of transmission pathways.
IAEA communication activities: Workshop on communication and consultation

• Material developed in line with the recommendations of Safety Guide GSG-6
  • Generic material for both countries embarking on nuclear power and non-nuclear countries using radiation sources only, with examples and exercises tailored to the specific target audience

  – Implementation in the auspices of Technical Cooperation projects on radiation safety
  • Regional workshop for ARASIA countries, October 2018, Jordan
  • Regional workshop for Africa, April 2019, Ethiopia
  • Regional workshop for Asia and the Pacific, planned for July 2019, Korea
Thank you for your attention!