Risk Communication: Why and How to Communicate about Ionizing Radiation?

(in a medical field)

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EANM'19 Congress, October 12-16, in Barcelona/Catalonia.

This project has received funding from the Euratom research and training programme 2014-2018 under grant agreement No 662287.

Messages to take home

Communication about ionising radiation

- There is a **gap** in practice as well as in a theory.
- **One-way communication** (informing) should be replaced by engagement.
- **Communication** needs to be
  - **Strategic** (based on the empirical data, surveys, experiments…),
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  - **Evidence based**.
- There is a lot of work to do (**help us to help you**)

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Have you ever

- Needed to explain what is radiation?

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- Participated at a course where you could learn how to explain specific radiation related terms to a lay person?

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Have you ever

- Needed to explain what is radiation?
- Participated at a course where you could learn how to explain specific radiation related terms to a lay person?
- Participated in development of a communication tool (e.g. leaflet, informed consent)?
- or Discussed about radiation protection principles (in a methodological way)?

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Radiological risk communication is a gap in medical field

- is seldom dealt with in **trainings for medical specialists** (radiology, radiation therapy, nuclear medicine).
- is no – or only seldom included in **courses for radiation protection** (technical qualifications).
- is limited to doctor-patient communication, participatory decision making or informed consent in **general**, but not with risk communication related to ionising radiation.
- The radiation protection community does not deal with **requirements of good risk communication** or questions of participatory decision making in the medical field.

Stakeholder engagement is rather seldom

Source: the ENGAGE interviews with CONCERT, EUTERP and HERCA, D9.89 (2019)

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Where on this scale is your communication with patients or colleagues?

- All we have to do is **get the numbers right**
- All we have to do is **tell** them the numbers
- All we have to do is **explain** what we mean by the numbers
- All we have to do is show them that they've accepted **similar risks**
- All we have to do is show them that it's a **good deal** for them
- All we have to do is **treat them nice**
- All we have to do is make them **partners**
- **All of the above**

Source: Fischhoff, B (1995). Risk perception and communication unplugged: 20 years of process. *Risk Analysis* **15** (2).

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Phases of risk communication (Leiss and Powell, 2004)

Risk communication was seen as:

1. A form of **education** whereby the public should be informed about risk estimates.

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Phases of risk communication (Leiss and Powell, 2004)

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1. A form of **education** whereby the public should be informed about risk estimates.

2. A **marketing practice** with the aim to persuade people to adopt a certain message.

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1. A form of **education** whereby the public should be informed about risk estimates.

2. A **marketing practice** with the aim to persuade people to adopt a certain message.

3. A **participatory practice** with which the gap between experts and lay people can be bridged (Renn, 2008)

Trust plays an important role in bridging this gap and making risk communication effective (e.g. Persensky et al. 2004)

Trust is a moral emotion that requires trustworthiness and **ethically responsible risk communication (care, empathy and respect).** (Nihlén Fahlquista & Roesera, 2014)

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Objectives of risk communication in 21st century

- **Empowerment** (help people to make informed decisions) *e.g. sign informed consent*
- **Enlightenment** (making people able to understand risks and become "risk-literate") *e.g. collaboration between different professions during a surgery*
- **Behavioural changes** (making people aware of potential risks and act accordingly) *e.g. Justification and optimisation of the use of X-rays in dental clinics*
- **Trust building** (assisting risk management institutions/medical personnel to generate and sustain trust) *e.g. Double exposure by child example*
- **Conflict resolution** (assisting risk managers to involve major stakeholders and affected parties to take part in the risk management process). *e.g. collection of urine at a hospital*

Stakeholder engagement

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Who are our stakeholders?

- **Primarily:** patients, medical personnel exposed to radiation …
- **Secondarily:** comforter or caregiver of a patient …
- **Tertiary:** radiologist, radiation oncologist, medical physicists, technologists, radiographers, radiation therapists, nurses, … other allied professionals e.g. senior management of health facilities, hospital committees, patient's ombudsperson, NGO's …

The Image Gently Alliance

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Poor practice in patient-centred approaches and informed decision making,

Results of the ENGAGE workshops: **nurse-practitioners** in various institutions

- Stakeholder engagement is (almost) non-existent;
- Very little awareness exists among nurse-practitioners on prescriptions for stakeholder participation – such as Informed Consent;
- Confusion about who is responsible for Informed Consent: nurse-practitioners or doctors;
- “Real” participation wherein nurse-practitioners and patients have full co-decision-making power is considered impossible;
- Only patients can participate, nurse-practitioners have no opportunities for participation;
- Stakeholder participation is only considered on a short time frame.

Source: ENGAGE: D9.89, p.13 (Cantone et al. 2019)

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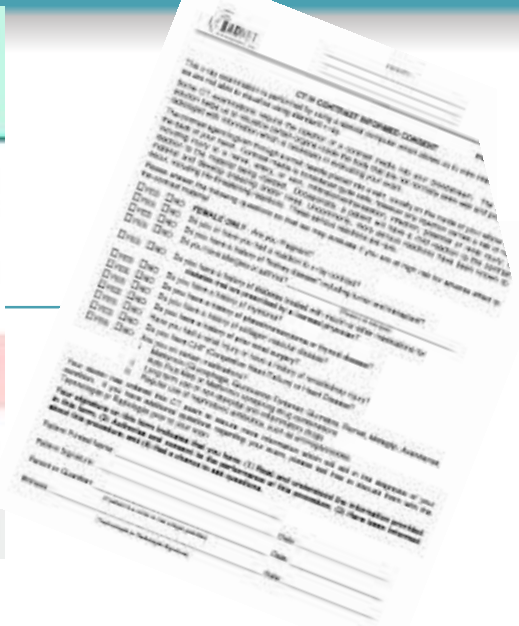
Bonn call for action (2012)

- **1.** Enhance the implementation of the principle of **justification**
- **2.** Enhance the implementation of the principle of **optimization** of protection and safety
- **3.** Strengthen **manufacturers' role** in contributing to the overall safety regime
- **4.** Strengthen radiation protection **education and training** of health professionals
- **5.** Shape and promote a strategic **research agenda** for radiation protection in medicine
- **6.** Increase availability of improved **global information** on medical exposures and occupational exposures in medicine
- **7.** Improve **prevention of** medical radiation **incidents and accidents**
- **8.** Strengthen **radiation safety culture** in health care
- **9.** Foster an improved radiation **benefit-risk-dialogue (with patients and the public)**
- **10.** Strengthen the implementation of **safety requirements globally**

IAEA

World Health Organization

Informed consent



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Informed consent

- is a **process**,
- starting with **communication** (including listening to a patient),
- providing adequate information and answers to patient on the **risks-benefits** and **options** about the diagnostic, or therapeutic, or interventional procedures,
- and defining if there is an **agreement** by the patient about the proposed procedure.
- The use of an adequate informed consent, with a procedure including a higher consideration for, is still considered a challenge on how to address **patient dignity in decision-making**

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Source: ENGAGE: D9.89, p.13 (Cantone et al. 2019)

Informed consent

If patients have additional questions related to informed consent:

"*We send them to the doctor as they always want to be right anyway*".

(medical practitioners)

- is
- s
- p
  a
  procedures,
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How patients perceive informed consent?

- What? Important information: information about the risks and benefits of the procedure, possible alternatives and general information about the procedure; 10% think that technical details about the procedure are less important.
- When? One in two patients consider that information should be given some days before therapy, while the others think that the information should be given immediately before the procedure.
- How? 40% of the respondents recommend that information should be given both orally and in writing, while others suggest either oral or written information.
- only 1 in 4 patients considered that the information was easy to understand.

N=50 (cancer patients in Coltea Hospital from Bucharest)

Source: The ENGAGE questionnaire with cancer patients undergoing radiotherapy, D9.89 (Cantone et. al, 2019)

Basic on information processing

How

do we process

radiation related information?

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Basic on information processing

Reception

↓

Acceptance

↓

Decision/Behaviour change

Systematic
vs.
Heuristic
information
processing

attitudes, subjective norms, descriptive norms, moral norms, self-efficacy, risk-perception, protective efficiency of an action, perception of resources needed …

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What makes risk communication work?

TRUST	NEGATIVE DOMINANCE
MENTAL NOISE	RISK PERCEPTION

Adapted from: Source: Jimenez & Associates http://www.scagle.net/sitebuildercontent/sitebuilderfiles/risk_communication-bw.pdf

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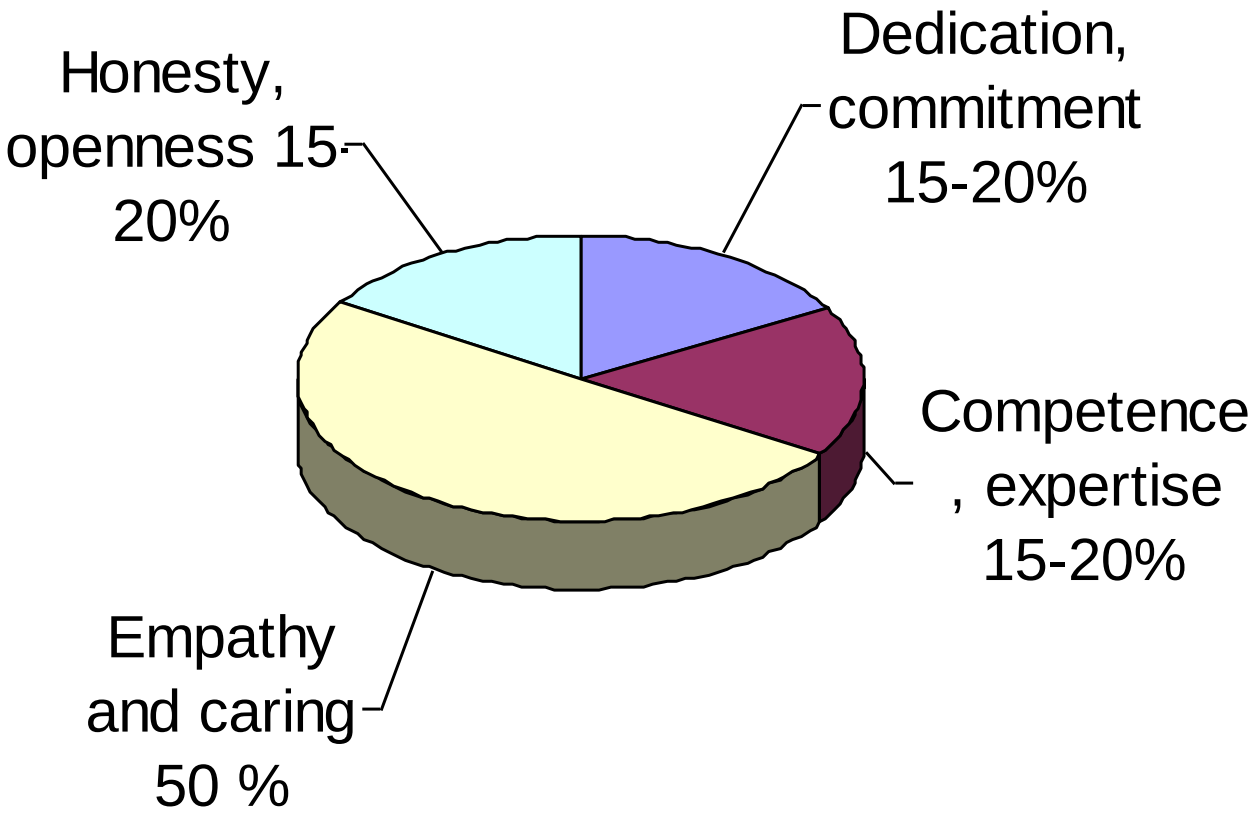
What influences peoples trust?



Renn & Levine, 1991

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Negative dominance

Negative dominance

People:

- Put more attention to negative statements e.g. No, not, never, nothing, none – get more attention,
- May focus more on losses than on gains.
- Remember negative statements longer.

How to build positive dominance?

- Avoid negative statements
- Don't repeat negative questions
- Let people express their feelings
- Create opportunities for people to express their concerns
- Give people something to do
- Include and involve people
- Give people responsibilities

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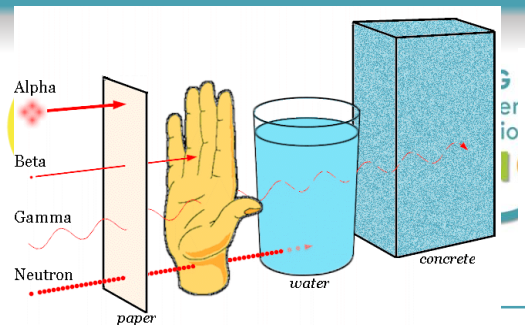

Mental noise

People who are upset

- Tend to think negatively,
- Have difficulty hearing, understanding and remembering information.
- Are often distrustful.

What causes it?

- Stress, Anxiety, Anger
- Perceived treat
- Exposure to risk associated with negative psychological attributes

How to reduce mental noise

- In discussion make pleasant climate
- Carefully select the place
- Reduce the size of the audience
- Carefully select the people participating in discussion
- Limit the number of messages
- Keep your messages short
- Repeat your messages
- Listen the participants
- Use graphic, multimedia, visuals …

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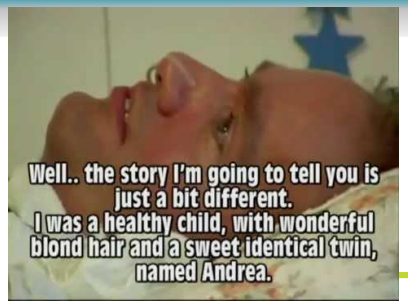
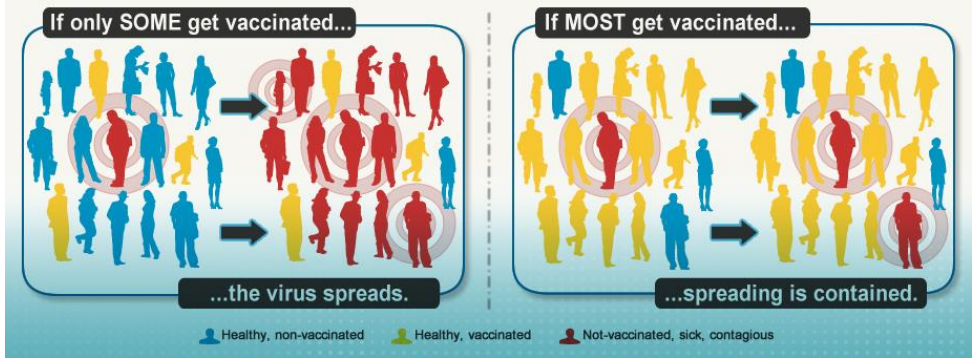
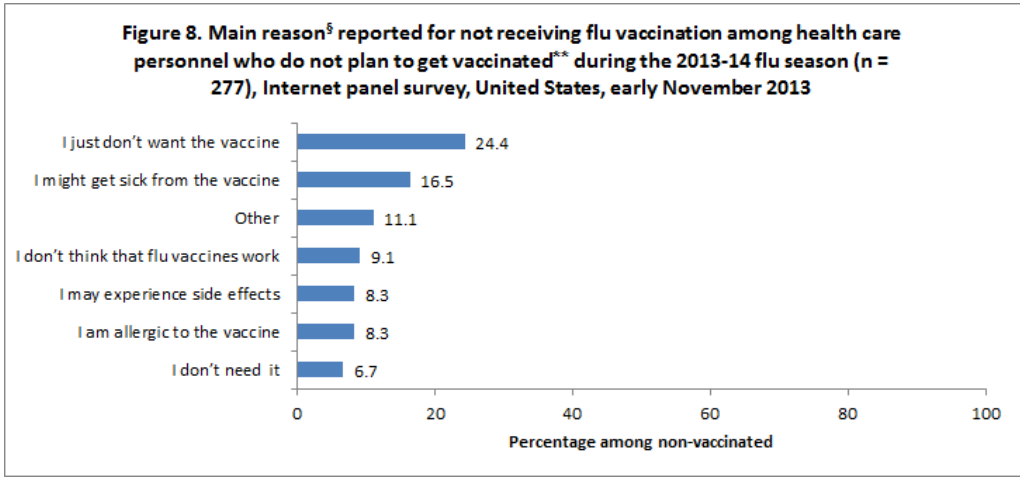


Risk perception

- (Mis)interpertations
- Past experiences
- Intuition
- Emotions
- Personal interest
- Existing wide spread images
- Access to information
- Credibility
- Trust
- Confidence
- **Risk perceptions**
- …

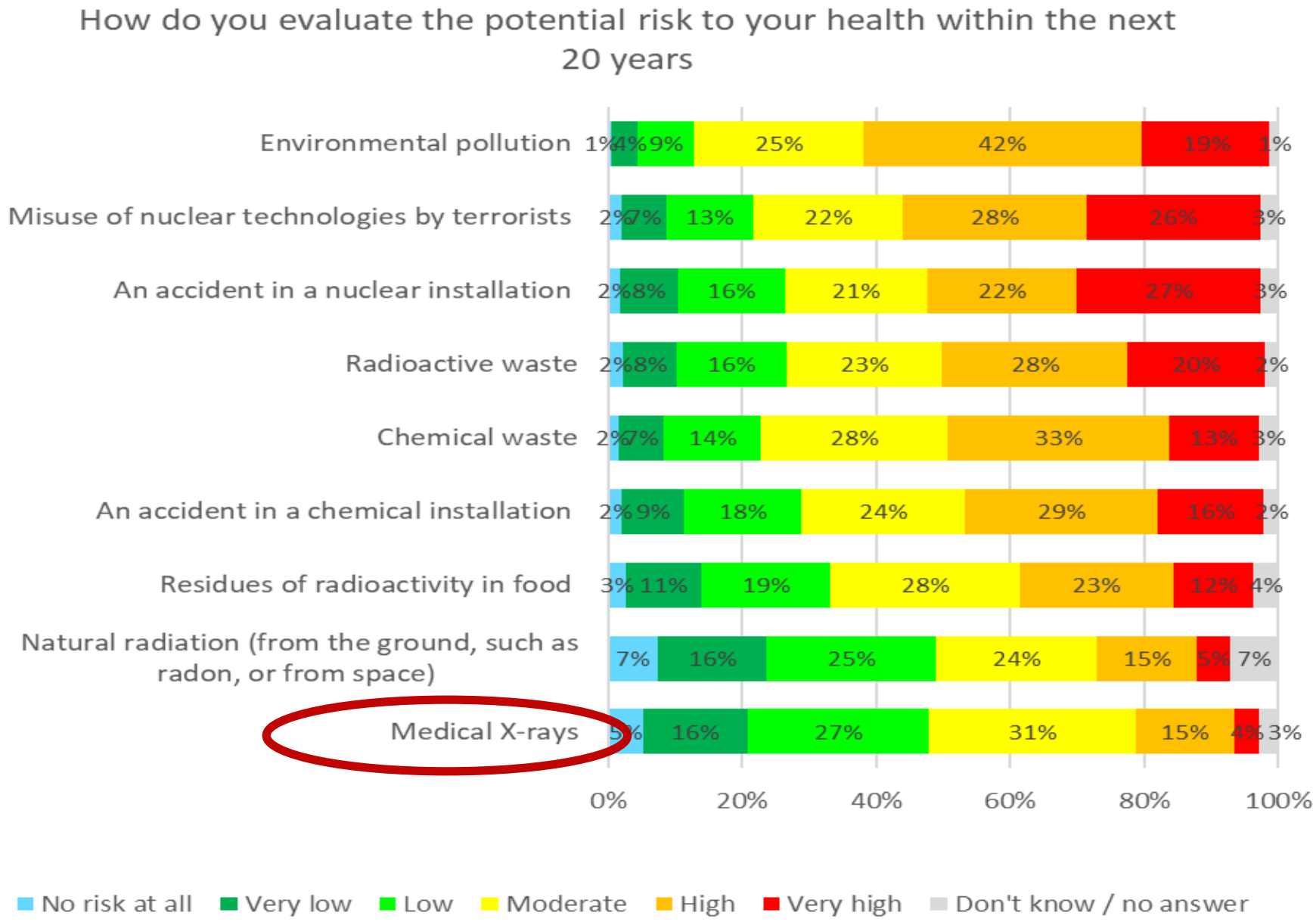




Fischhoff et al, (1978); Slovic (1987); Sjöberg, B_M Drottz-Sjöberg (1991); Renn, (2008) …

urvey, United States, November 2013
87.

Source: SCK•CEN Barometer, Turcanu C. et al, 2017



Belgian population 18+; N=1083, sample weighed for education, gender and age; 2018

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How to communicate
with a patient
before applying radionuclides for medical diagnostics?

(radiation exposure during each scan will be about 15 mSv)

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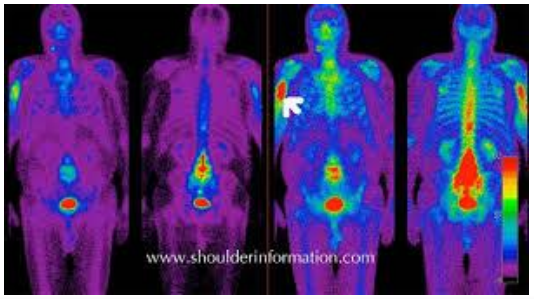
Communication in medical diagnostics with a patient

"Your scan in Nuclear Medicine involves exposure to radiation. Although it can vary from person to person, your whole body radiation exposure during each scan will be about 15 milliSieverts. This is about five times the average annual radiation exposure a person in our country receives from natural background radiation. Although no harmful effects are expected, your long term risks of harm from this degree of radiation exposure might be as high as 1 in 1000. This means that one person out of 1000 may develop cancer or other genetic changes due to radiation received during this medical diagnostics".



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Developing of communication tools
DO it on a professional way

- **Define objectives**
- **Mapping the behavioural change methods**
- **Development of communication tools:**
- **Testing**
- **Large-scale implementation and evaluation**

Involve stakeholders, social scientists and risk communication specialists

Invest resources

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https://www.ssh-share.eu

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