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The English-language slides, as shown during the symposium presentation, best reflect the author's intent. Japanese translations by the symposium secretariat should be regarded as provisional and for reference purposes only.

2024年 福島県立医科大学『県民健康調査』国際シンポジウム
公立大学法人福島県立医科大学放射線医学県民健康管理センター
国際シンポジウム事務局（広報・国際連携室）
✉ kenkani@fmu.ac.jp Tel: 024-581-5454(平日9～17時)
2024 Fukushima Medical University International Symposium on the Fukushima Health Management Survey
Secretariat of International Symposium
Office of Public Communications and International Cooperation, Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University
✉ kenkani@fmu.ac.jp, TEL: +81-24-581-5454 (Weekday, 9a.m. - 5 p.m. JST)

IAEA
International Atomic Energy Agency

Collaboration with International Organizations
Lessons from Fukushima

May Abdel-Wahab, MD, PhD, FACR, FASTRO

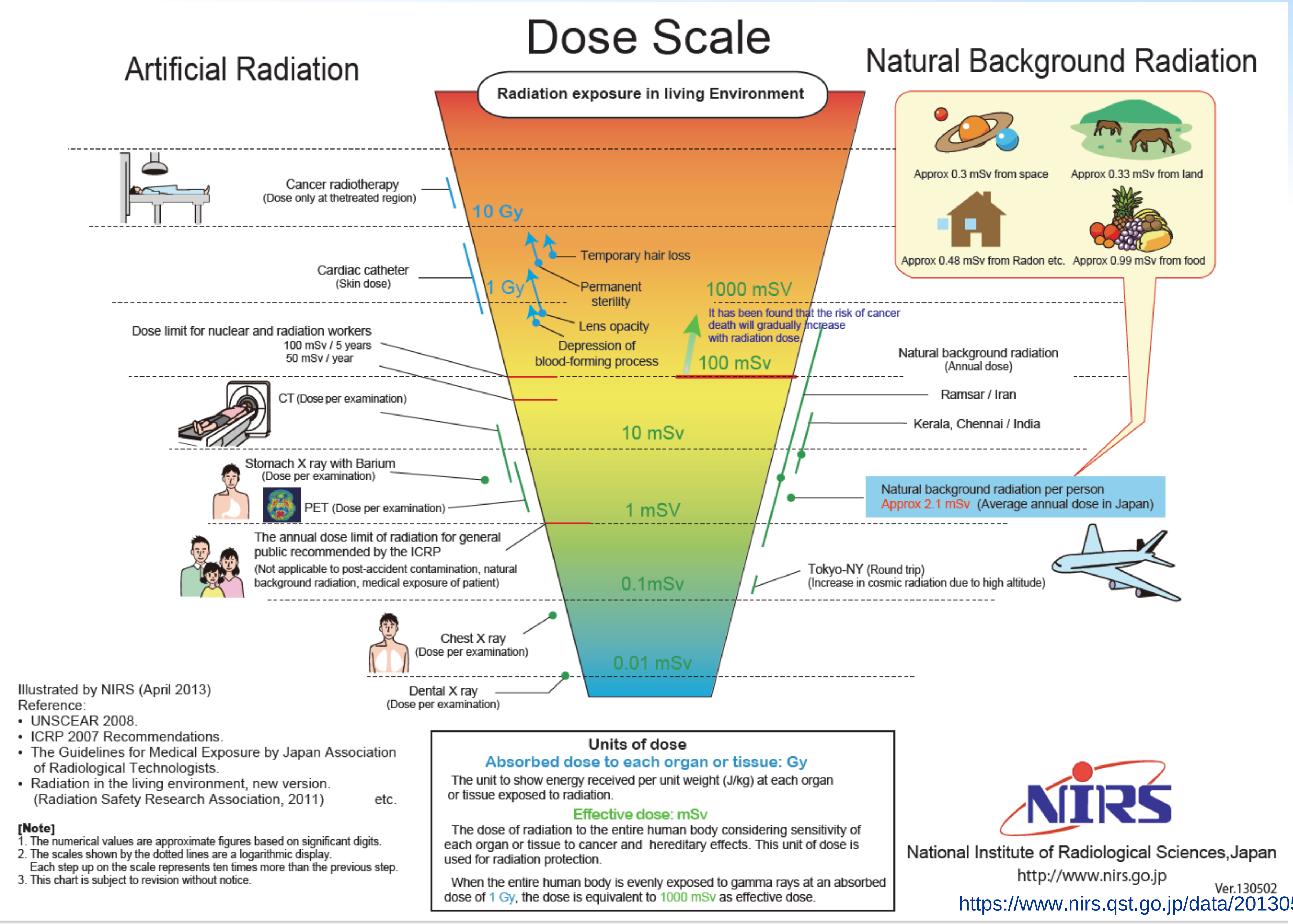
2024 Fukushima Medical University International International Symposium on Fukushima Health Management Survey
Build Back Better together
Session 3.11: Sharing Lessons from Fukushima with Japan and the World
Saturday March 2nd 6:15-7:00 am CET

Outline

- General overview of radiation exposure.
- How do patients, as well as local population concerned with radiation effects, process information
- Radiation risk assessment and communication
- Examples of IAEA support during Fukushima
- The IAEA Division of Human Health in collaboration with the Hiroshima University, Fukushima Medical University, and Nagasaki University, among others, STS projects in radiation, health, and society over the years
- Rays of Hope initiative and the new STS project

Communicating Radiation Dose

IAEA



https://www.nirs.qst.go.jp/data/20130502.pdf

Adult dose compared to Background Radiation Level

Exam	Reference level (time to receive equivalent background radiation)
Chest X-ray PA / LAT	2.4 days / 12 days
Mammography	1 ½ months
Abdomen / Pelvis X-ray	3 months
Head CT	8 months
Lung Perfusion (Tc^{99m})	8 months
Thyroid scan (Tc^{99m})	1 ½ years
Brain (Tc^{99m})	2 years
Abdominal CT	2 ½ years
Cardiac Stress Test (depending on isotope/protocol)	3 years – 13 ½ years
Cardiac PET (^{18}F-FDG)	5 years
High resolution Chest CT (e.g. pulmonary embolism, angiogram)	5 years
** Using an average background radiation level of 3 mSv/yr and Tables 8-11*	

Contextualize

Reasoning tailored for patients and returnees

HEALTH RISKS FROM EXPOSURE TO LOW LEVELS OF IONIZING RADIATION BEIR VII PHASE 2: https://www.nap.edu/read/11340/chapter/1

Classic Human Brain Anatomy and Physiological Activities

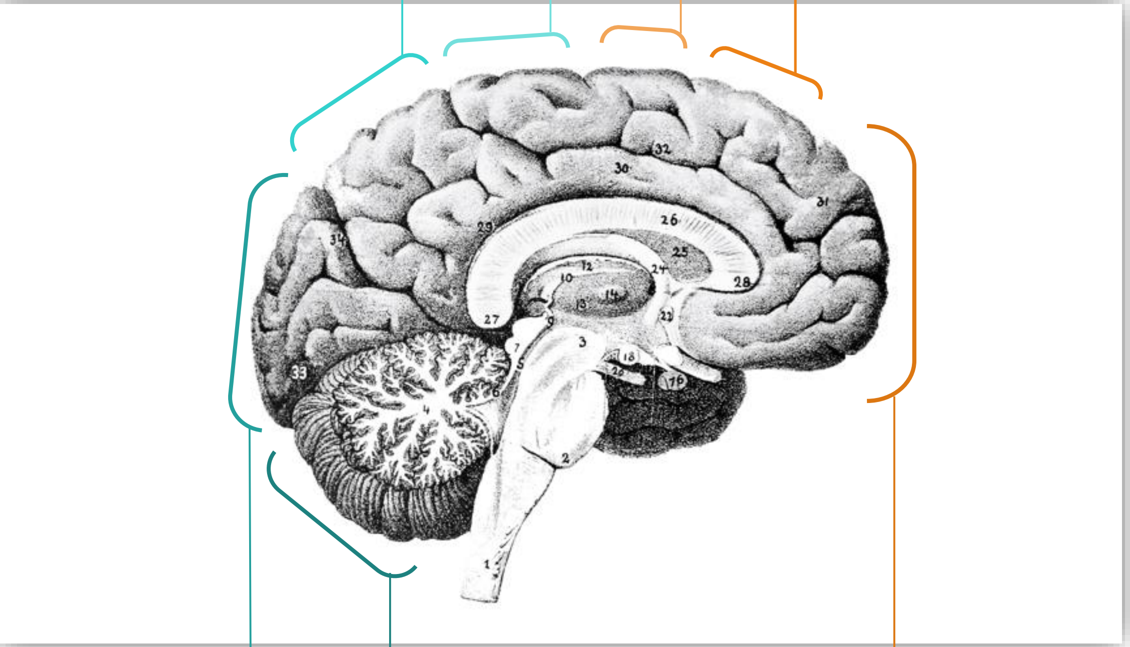
IAEA

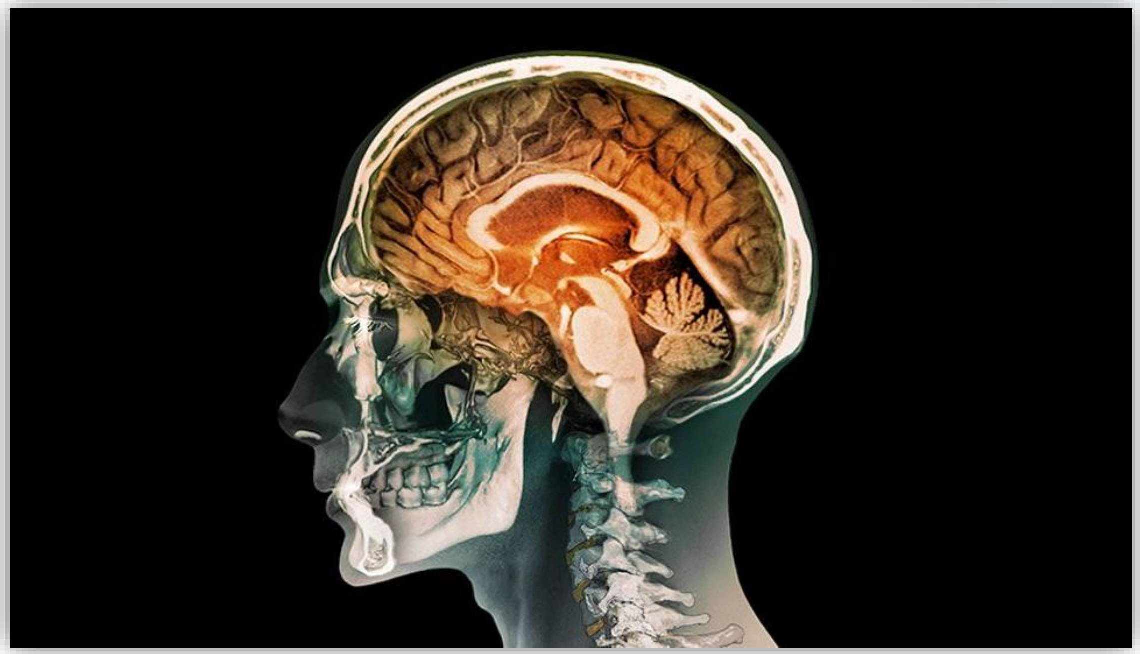
Parietal Lobe: Sensory from Skin and Muscles

Initiation of Voluntary Muscles

Multi-Sensory Processing

Frontal Lobe: Orientation, Head and Eye Movements & Posture





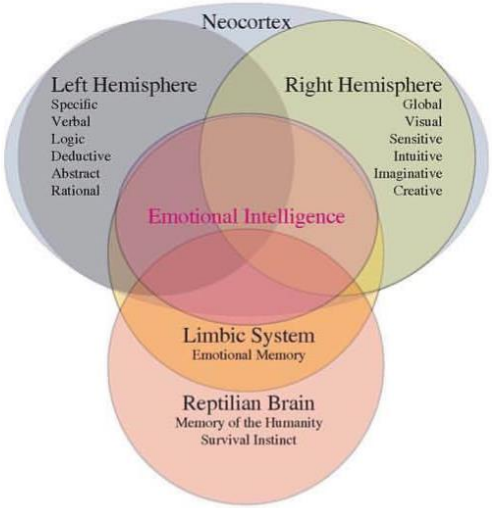
Frontal Lobe: **Problem Solving, Creativity, Emotional Expression & Behavioural Control**

Cerebellum: Voluntary Movements, Posture, Balance, Co-ordination & Speech

Occipital Lobe: Perception, Eye Movements, Visual Memory & Association

Sciences, C.B., SPL. 2014.

Anatomy of Human Brain and Physiologic Activities



PRIMATE "THINKING" BRAIN:

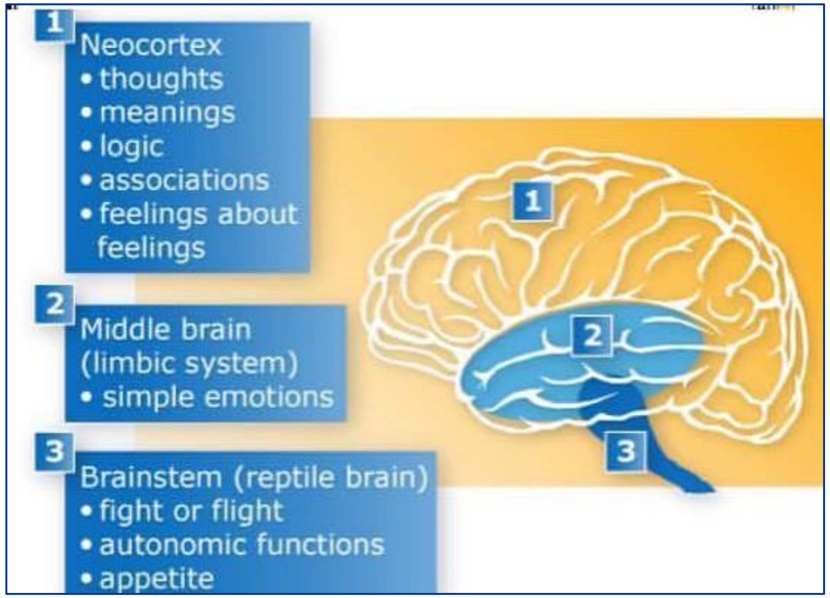
- *Brain region:* Neo cortex
- *Responsible for:* sensory perception, spatial reasoning, generation of motor commands, conscious thought, intellectual memory
- *Happy when:* learning, anticipating future reward, connected to higher purpose, in flow
- *Evolutionary role:* predicting brain that helps the community thrive

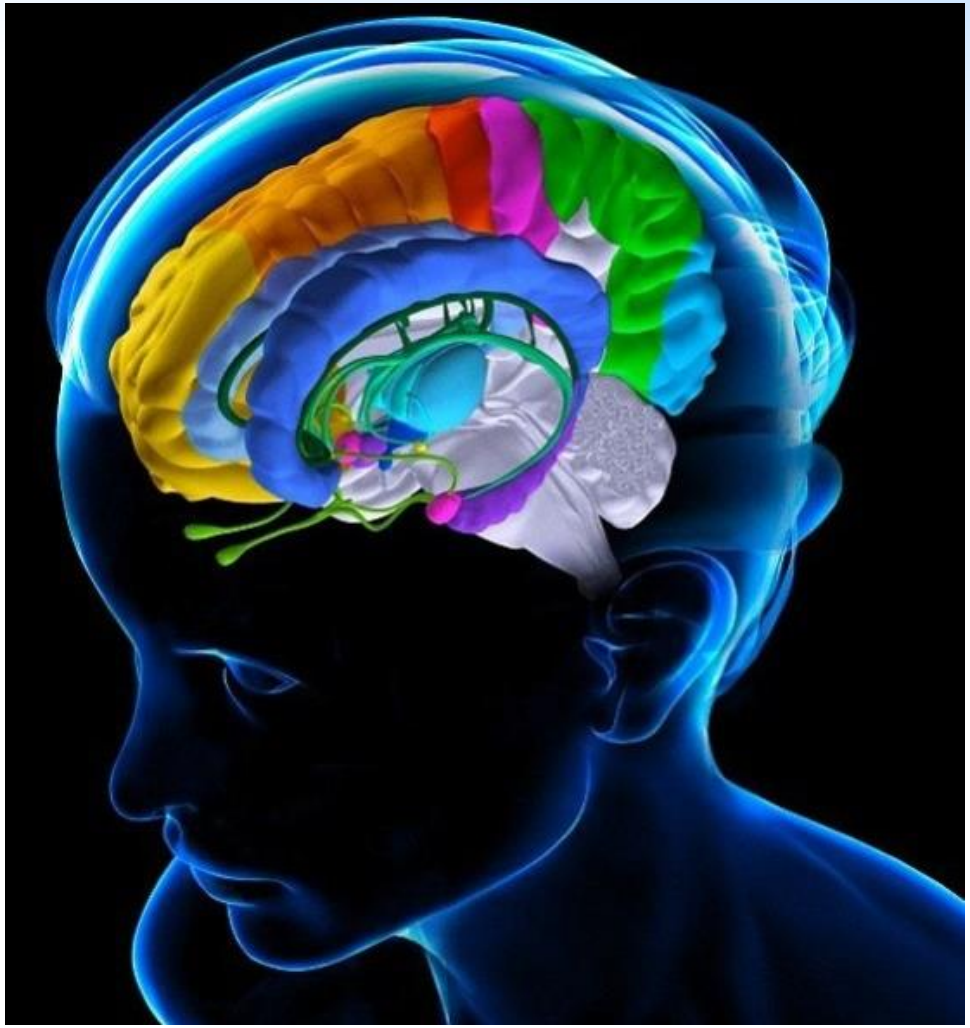
MAMMILIAN "FEELING" BRAIN:

- *Brain region:* Limbic system (includes amygdala / fear center & nucleus accumbens / pleasure center."
- *Responsible for:* (positive) emotions, learning, emotional memory and spirituality
- *Happy when:* feel trust, social bonds, higher status
- *Evolutionary role:* social brain that helps the community survive

REPTILIAN "INSTINCTIVE" BRAIN:

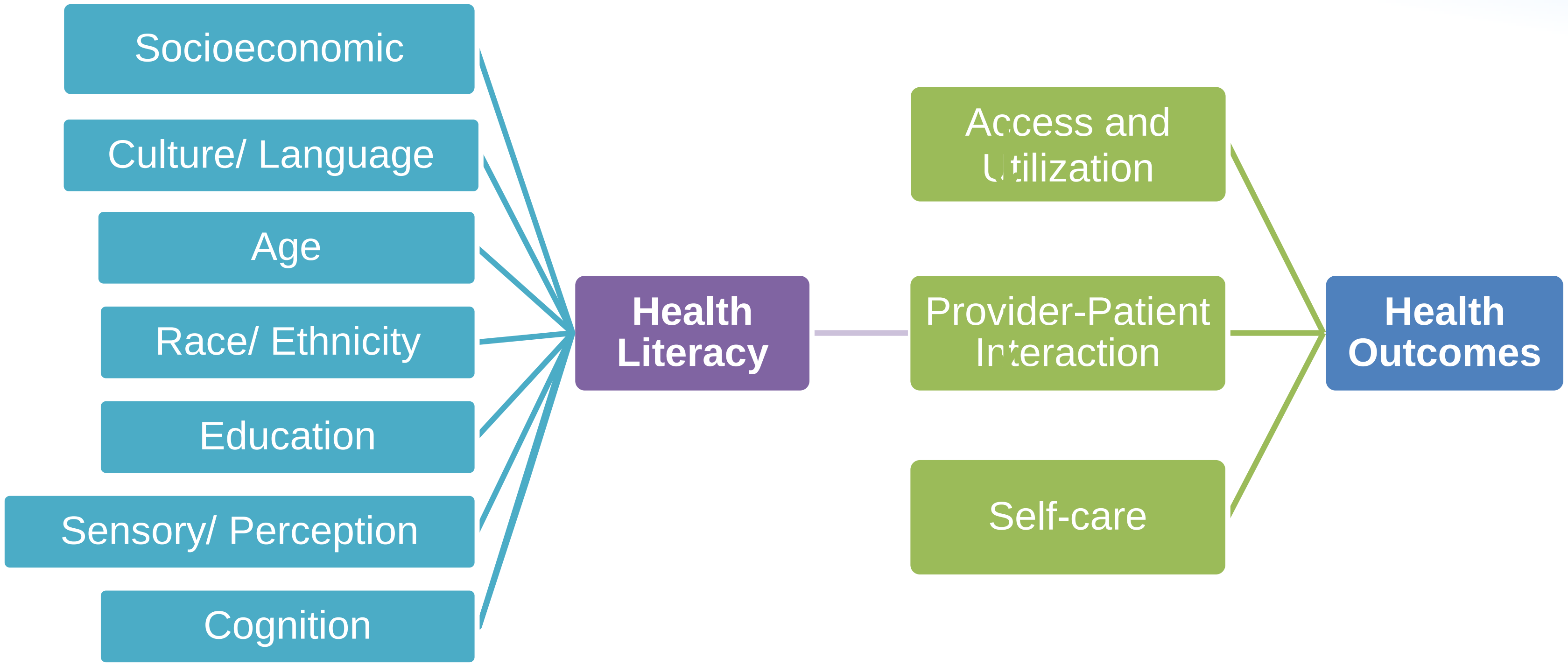
Brain region: brain stem
Responsible for: the 4 F's - fight, flight, feed and fornicate (wired for danger and therefore negative emotions)
Happy when: safe from danger
Evolutionary role: selfish brain that helps us survive individually





https://mi-psych.com.au/your-brains-3-emotion-regulation-systems/
https://quarterjack.tumblr.com/post/138626982205/triunebrain-humanbrain-brain-reptiles-mammals

Health Literacy

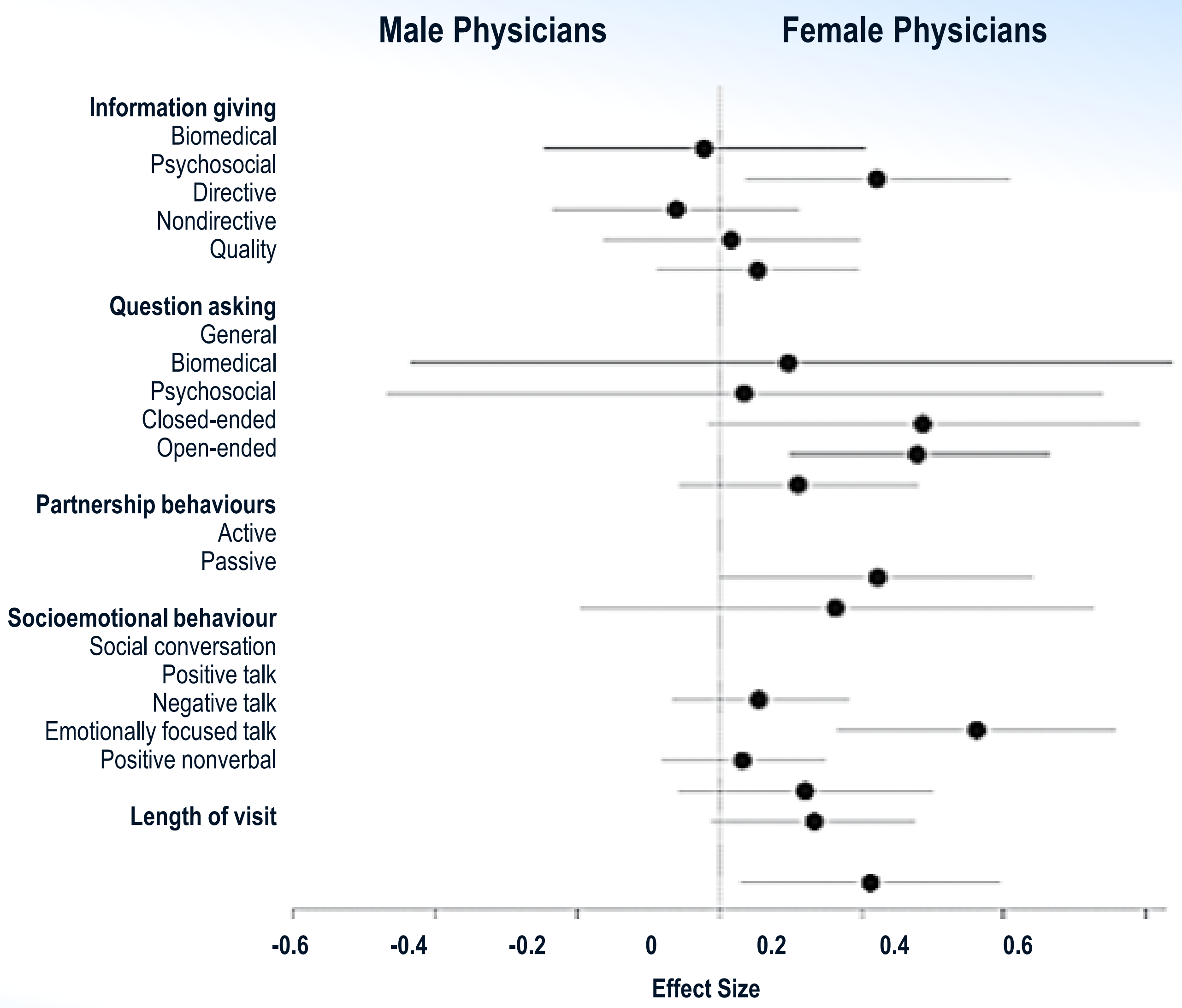


Adapted from Paasche-Orlow and Wolf (2007)

Gender-specific differences doctor-patient communication

Estimated pooled gender effect sizes for categories of patient-physician communication

Base: 23 observational studies and 3 large physician-report studies reported in 29 publications met inclusion criteria and were rated



Source: Adapted from Roter, D. L., Hall, J. A., & Aoki, Y. (2002). Physician gender effects in medical communication: a meta-analytic review. Jama, 288(6), 756-764.

*Error bars indicate 95% confidence intervals

Communication and messages

- KEEP IT SIMPLE:
  - Develop messages at a 6th grade reading level
  - Avoid jargon and scientifically complex terms.
- KEEP IT BRIEF:
  - Make messages for the public brief, concise and clear.
- KEEP IT TO THE POINT:
  - Follow the 27/9/3 rule.

In high-stress situations, a spokesperson is judged primarily by actions/non-verbal communications before audience members ever listens to the message

Risk Communication Myth

You can't anticipate what people will ask

Truth

95 percent of all questions and concerns of all stakeholders for all controversies are predictable and can be anticipated in advance.

https://www.urmc.rochester.edu/MediaLibraries/URMCMedia/flrtc/EPA-Communicating-Radiation-Risks.pdf

https://www.urmc.rochester.edu/MediaLibraries/URMCMedia/flrtc/EPA-Communicating-Radiation-Risks.pdf ((Hyer & Covello, 2007)

The Influence of Background Behaviours during Medical Encounters

Despite there is a clear trend towards open communication between doctors and patients worldwide, distinct characteristics may affect the doctor-patient interaction

Variables to be considered to improve communication in the medical setting

Background variables

- Culture & doctor-patient relationship
- personal characteristics of both patient and doctors
- Characteristics of the disease

Communication content

- communicative behaviors
- task vs. affective oriented behaviors
- phase of the patient's illness
- relationship level

Patient outcomes

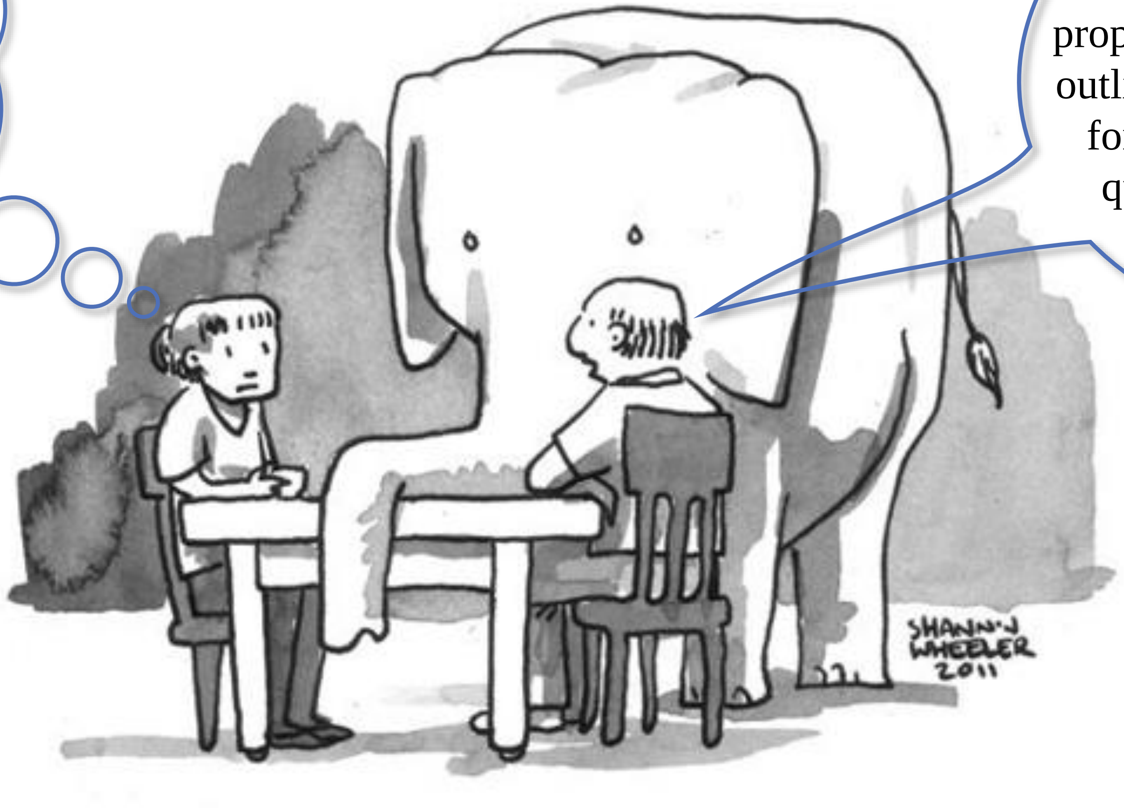
- satisfaction
- compliance
- recall and understanding of information
- health status

Source: Adapted from Ong, L. M., De Haes, J. C., Hoos, A. M., & Lammes, F. B. (1995). Doctor-patient communication: a review of the literature. Social science & medicine, 40(7), 903-918.

Communication and Messages

Myth:

Communicating risk is more likely to alarm people rather than calm them.



Truth:

This can be avoided if operated properly. Educate and inform the public, outlining the whole picture. Make space for them to voice their concerns, ask questions and process the answers.

Wheeler, S. 2011.

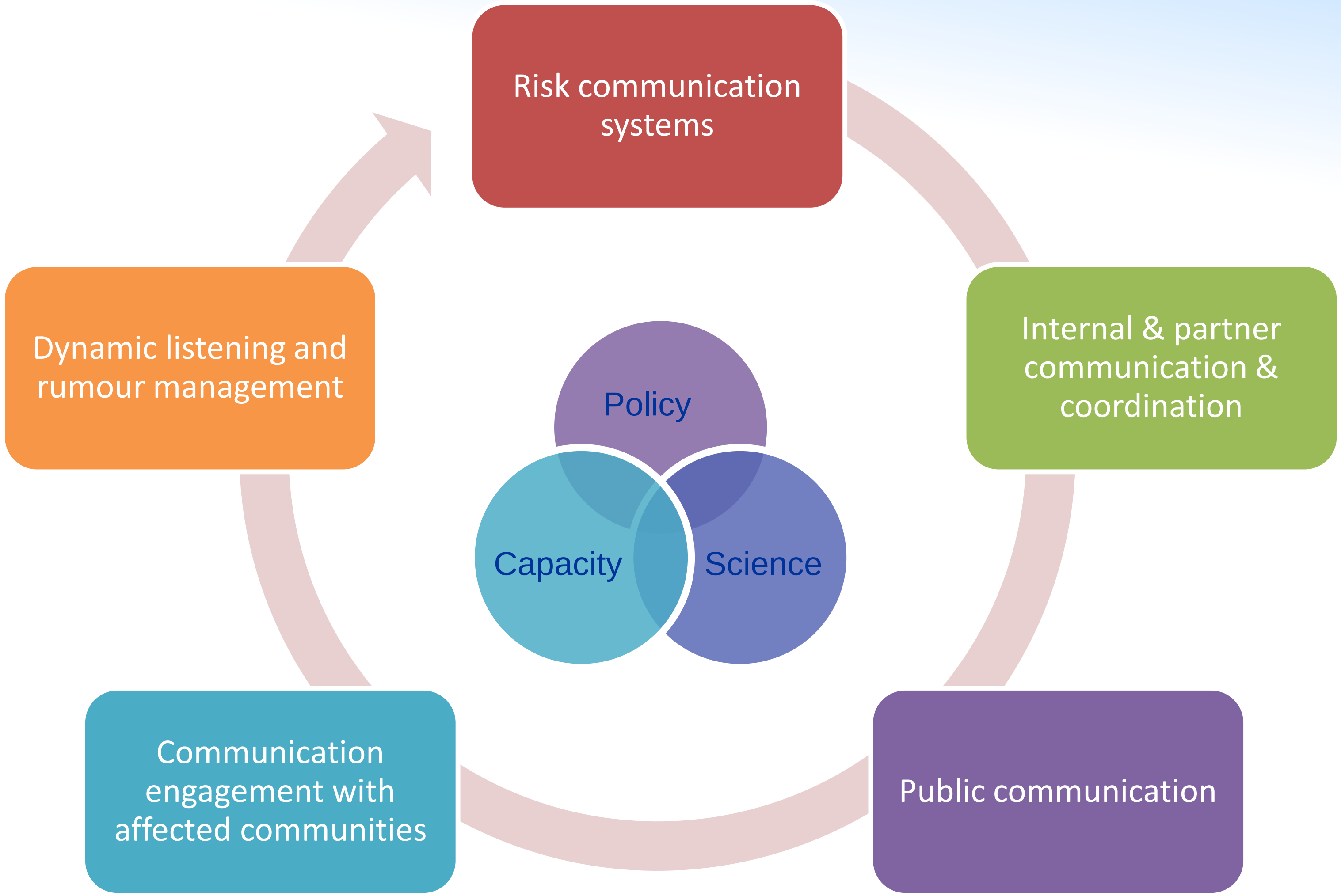
The role of experts in post accident recovery: lessons learnt from Chernobyl and Fukushima

Involvement and empowerment of the affected population to make informed decisions

- Established places for dialogue
- The use of a common language
- The development of a practical radiological protection culture, enabling the affected populations to make choices and to behave wisely
- Rapidly implementation of the projects to address the identified problems
- The evaluation and dissemination of results
- The need to perform assessments

Source: Adapted from Gariel, J. C., Rollinger, F., & Schneider, T. (2018). The role of experts in postaccident recovery: lessons learnt from Chernobyl and Fukushima. Annals of the ICRP, 47(3-4), 254-259.

Risk Communication

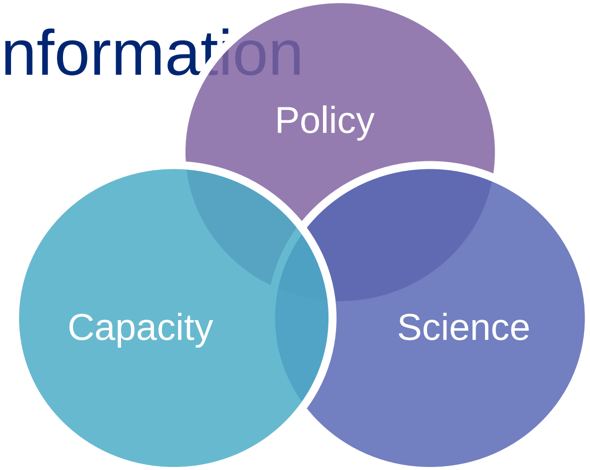


WHO Risk Communication Training: http://www.who.int/risk-communication/training/module-b/en/index1.html
P. Sandman et al (1994). Risk Communication. Encyclopaedia of the Environment. Houghton Mifflin. pp.620-623. http://www.psandman.com/articles/riskcomm.htm

Image: P. Sandman et al (1994). Risk Communication. Encyclopaedia of the Environment. Houghton Mifflin. pp.620-623. http://www.psandman.com/articles/riskcomm.htm

Why Improve Communication?

- Ineffective communication (in emergency situations) can result in negative consequences, i.e. public fear and confusion
- Quickly and effectively disseminate information



  - Technical facts
  - Individual Risk
  - Safety Information

- Close 'Communication Gap' between technical expertise and public understanding
- Increase public trust of official announcements and sources of information

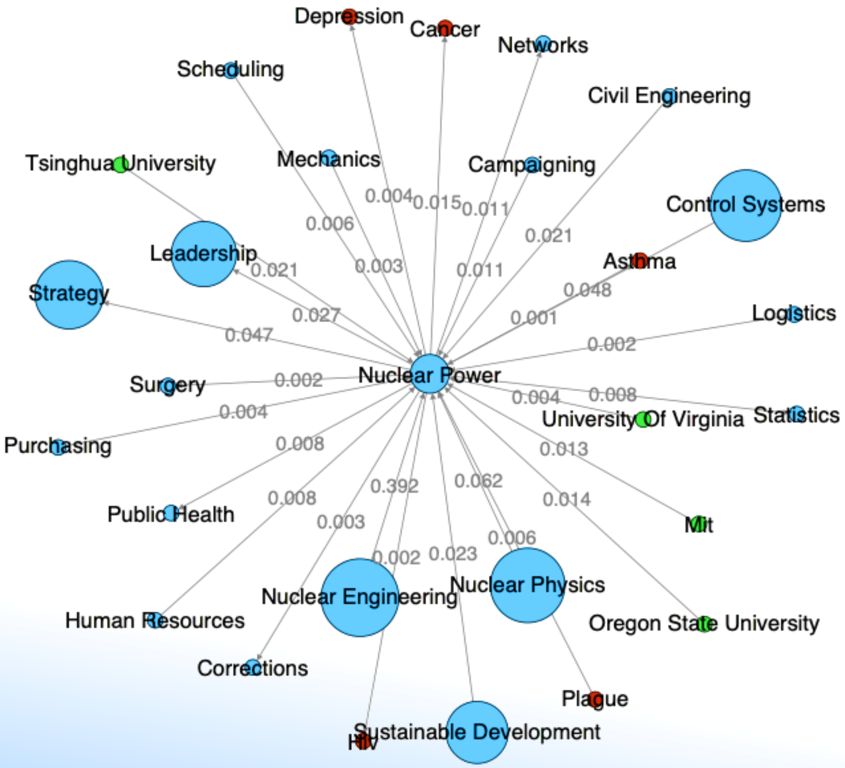
Image: P. Sandman et al (1994). Risk Communication. Encyclopaedia of the Environment. Houghton Mifflin. pp.620-623. http://www.psandman.com/articles/riskcomm.htm

The Impact of the Fukushima Accident: Big Data Analysis

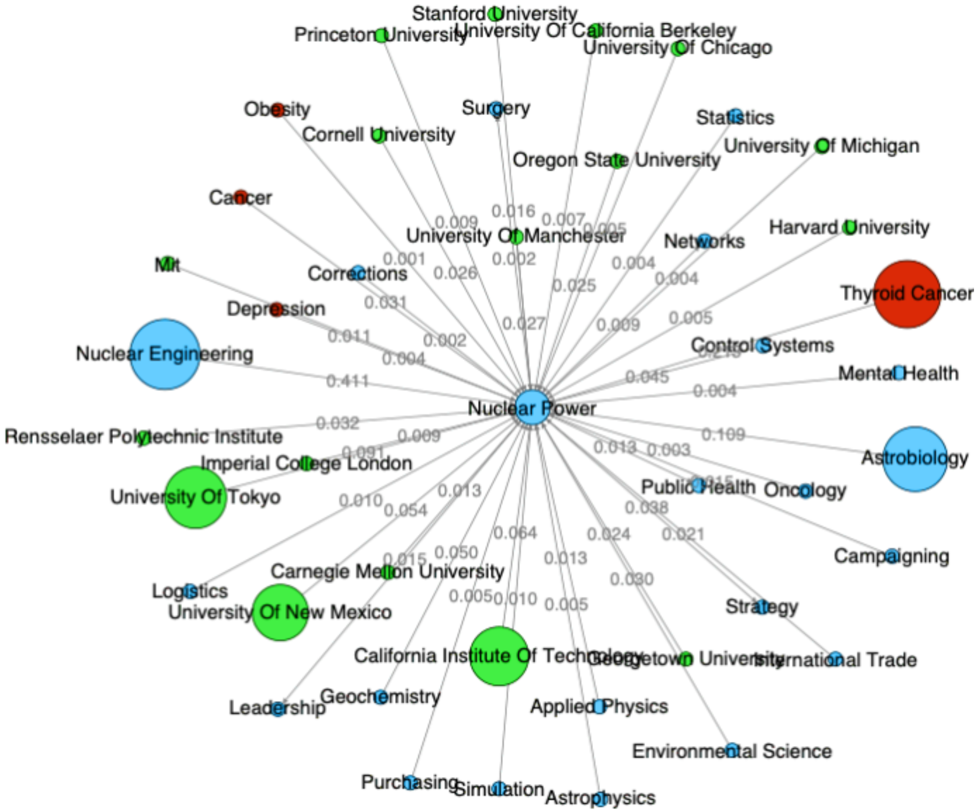
IAEA

A comparison of the associated universities (green), topics (blue) and diseases (red) found through association rule mining for 'Nuclear Power'

Before. 11th March 2011



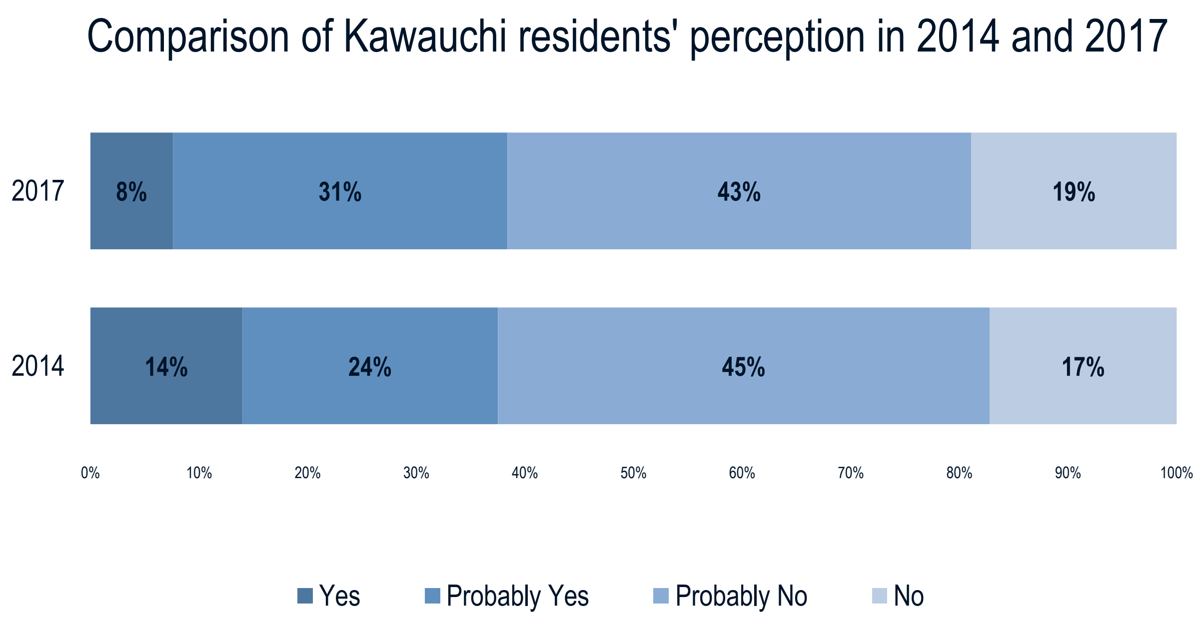
After. 11th March 2011

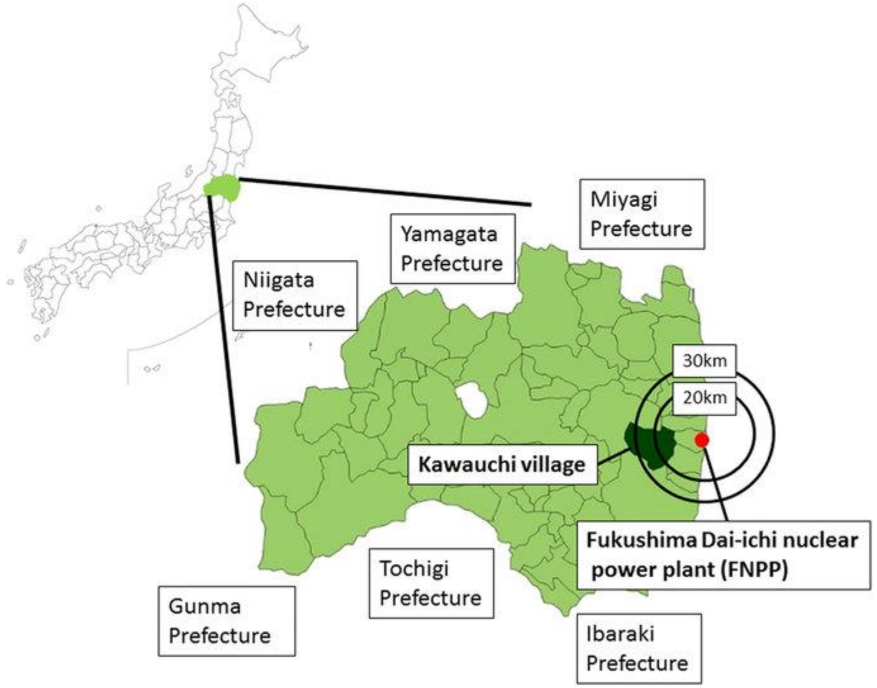


Source: Adapted from Lansdall-Welfare, T., Sudhahar, S., Veltri, G. A., & Cristianini, N. (2014). On the coverage of science in the media: A big data study on the impact of the Fukushima disaster. In 2014 IEEE International Conference on Big Data (pp. 60-66). IEEE.

The gap between residents' risk perception and their actual exposure doses have not changed, even 7 years after the accident

Residents' perception that adverse health effects would occur from 1 mSv per year of radiation exposure



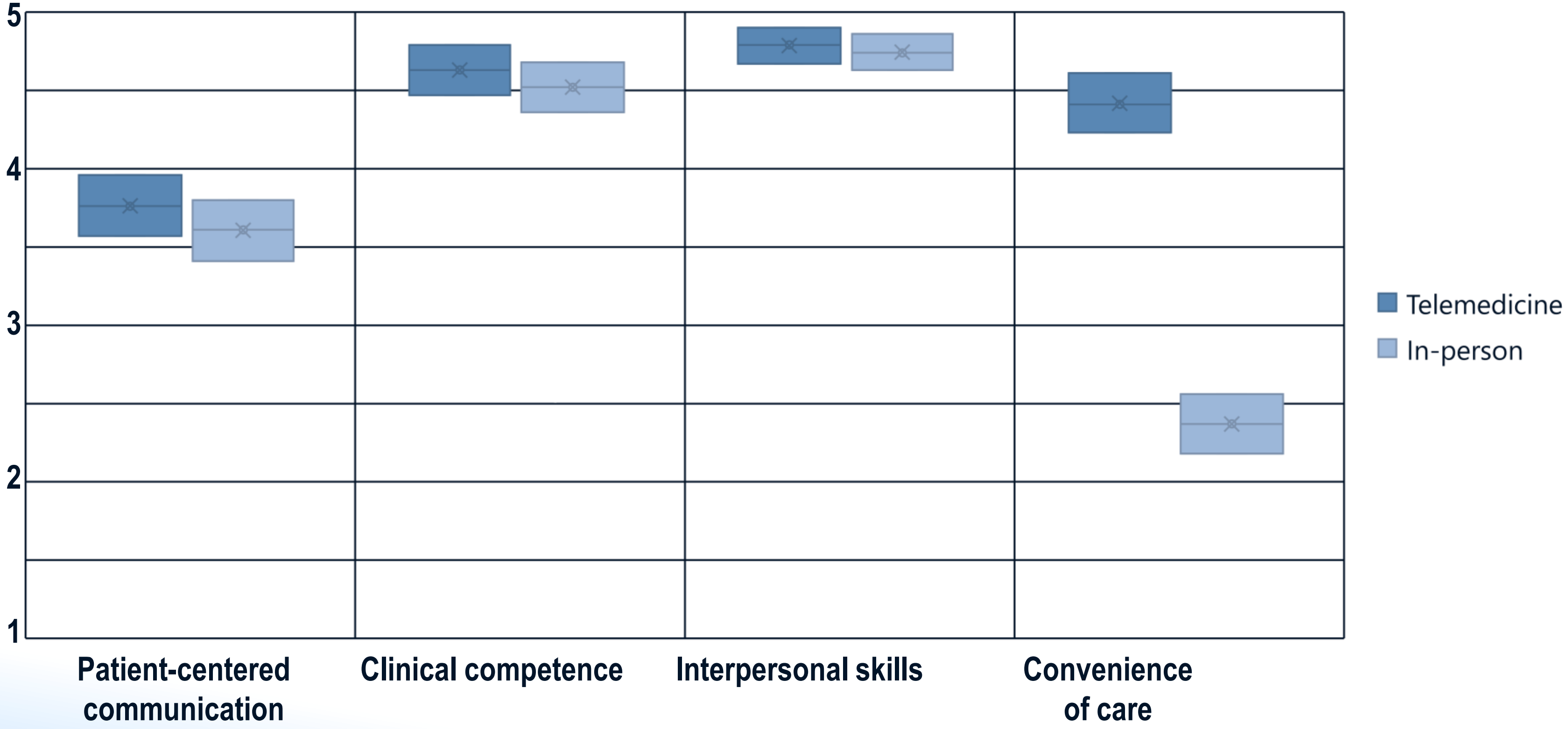


Source: Adapted from Sato, N., Orita, M., Taira, Y., & Takamura, N. (2018). Seven years post-Fukushima: overcoming the resident–specialist gap. Journal of radiation research, 59(4), 526-527.

Patient satisfaction with Doctor-Patient communication during telemedicine

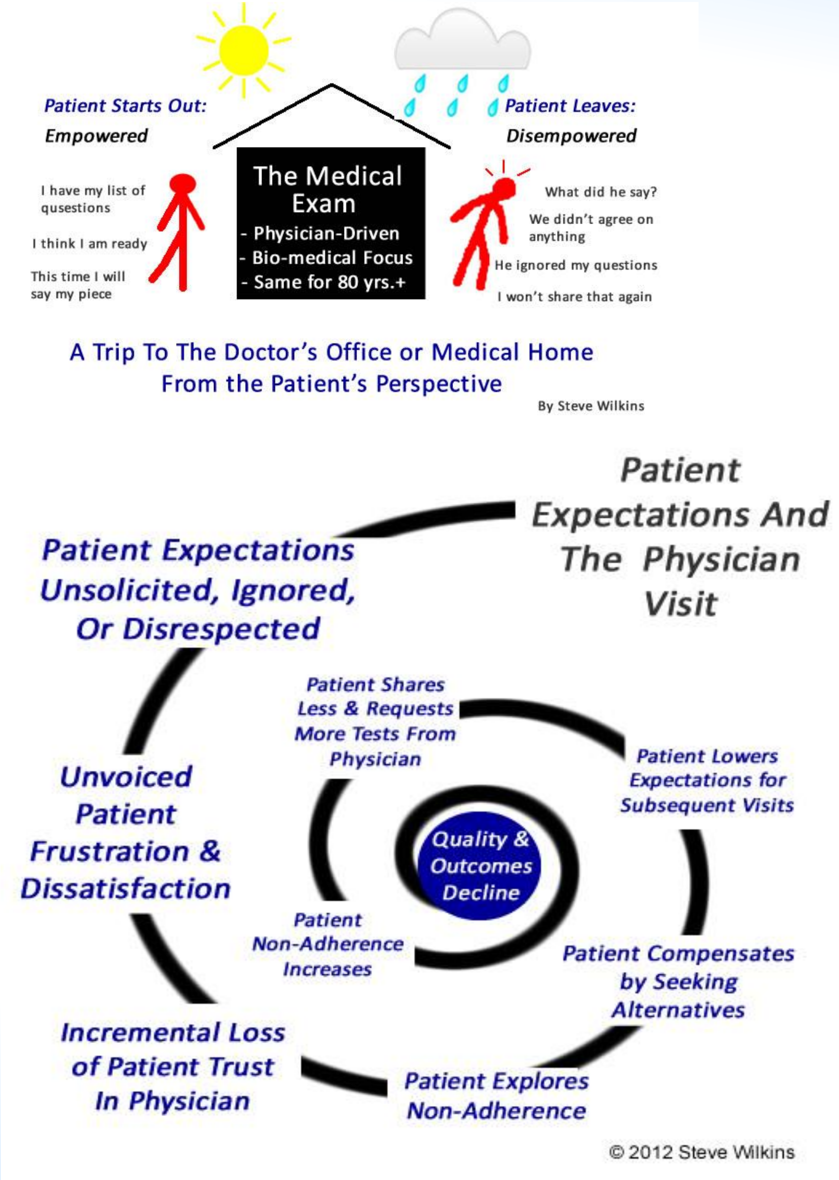
Research suggests that despite physical separation, communication during telemedicine is not inferior to communication during in person consultations

Patient satisfaction with Telemedicine versus In-Person consultation
(n = 221)



Source: Adapted from Agha, Z., Schapira, R. M., Laud, P. W., McNutt, G., & Roter, D. L. (2009). Patient satisfaction with physician–patient communication during telemedicine. Telemedicine and e-Health, 15(9), 830-839.

Patients’ Perspectives

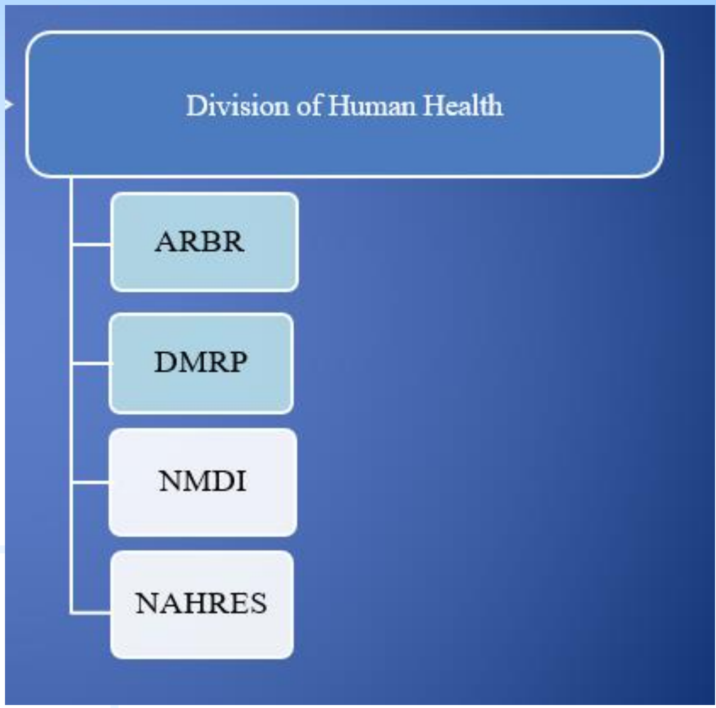


- Develop welcoming ritual
- Be present
- Choose positive words
- Nonverbal communication
- Ask open-ended questions
- Show empathy
- Ask-Tell-Ask
- Ensure buy-in through shared decision-making
- Leave on a good note

https://www.physicianspractice.com/patient-relations/9-ways-improve-your-patient-communications
https://healthecommunications.files.wordpress.com/2011/11/trip-to-doctors-office3.jpg AND
https://healthecommunications.files.wordpress.com/2012/04/patient-visit-expectations.jpg

IAEA expertise (NA and NS)

- **Department Nuclear Applications (NA)**
  - Division of Human Health
    - NMDI, ARBR, DMRP, NAHRES, Directors Office



- **Department Nuclear Applications (NA)**
  - Division of IAEA Environment Laboratories
    - Radiometrics, Radioecology, Marine environmental studies, Terrestrial Environment

- **Department Nuclear Applications (NA)**
  - Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture
    - Soil and Water Management and Crop Nutrition Section
    - NAFA-Food and Environmental Protection Section

IAEA expertise (NA and NS)

IAEA

- **Department Nuclear Safety (NS)**
  - Incident and Emergency Centre
    - Crisis communication
    - Emergency Preparedness

- **Department Nuclear Safety (NS)**
  - Division of Radiation, Transport and Waste Safety
    - NSRW-Radiation Safety and Monitoring Section

- **DGOC-Director General's Office for Coordination**
- **OPIC-Office of Public Information and Communication**
- **MTCD-Division of Conference and Document Services**
  - MTCD-Publishing Section

Cost and throughput relationship of measuring radioactivity in food during a nuclear emergency

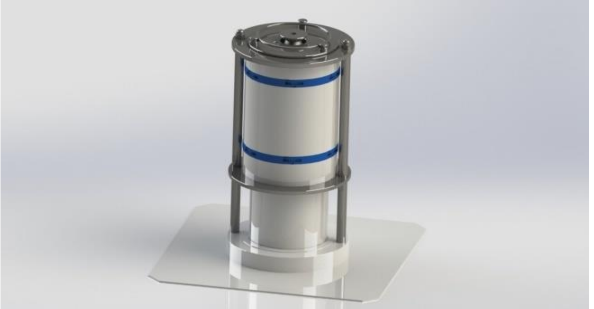
High

Cost

Low

Government- based laboratories

High- throughput systems



Single NaI detectors

Small community- scale initiatives

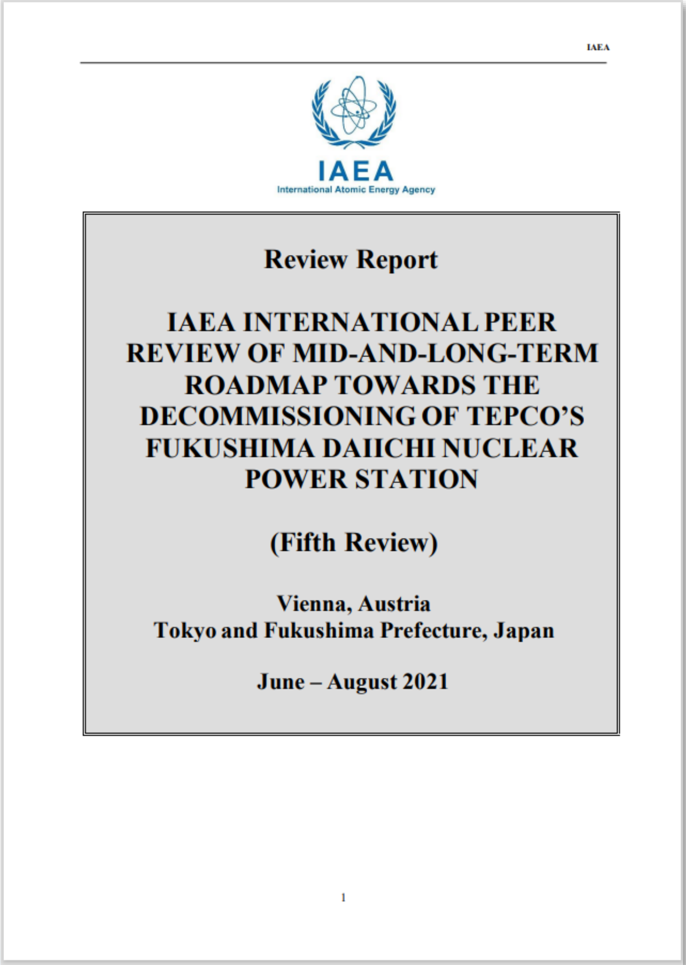
Low

Throughput

High

Slides Courtesy G Dercon

Published Reports Examples



2021

2015

2018

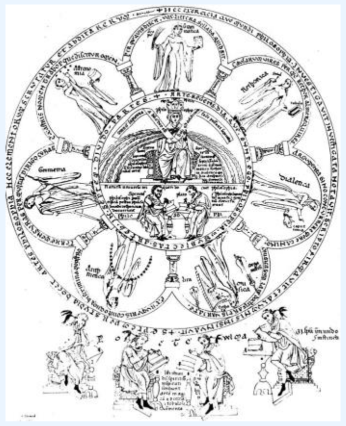
2022

2020

2016

STS Approach

- **The interdisciplinary field of Science, technology and society studies (STS) deals with how science (and technology) is made, communicated, and acted upon in social, political, and cultural contexts.**



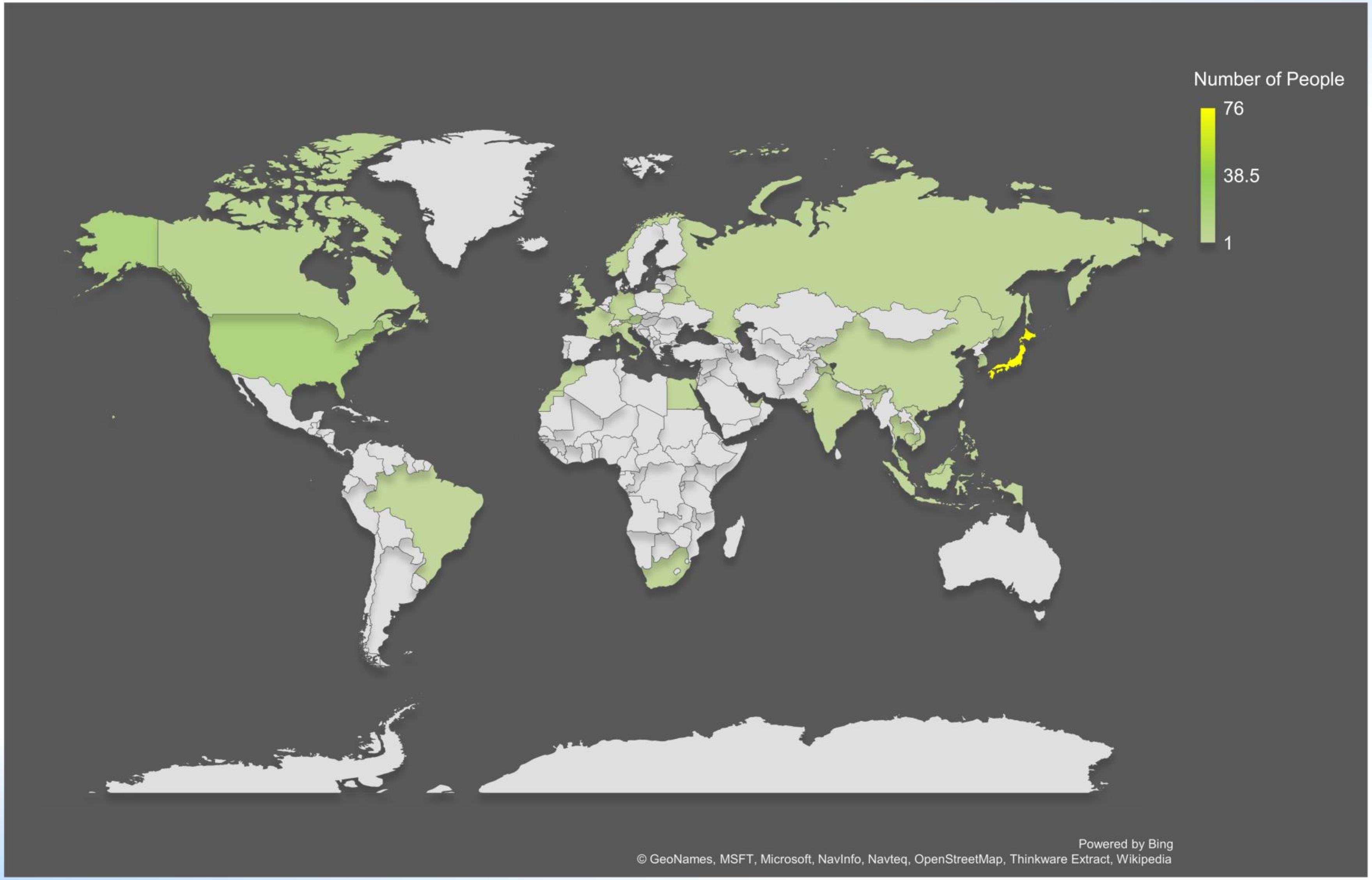
- Communication strategy
  - Contextualize information
  - Deflect distractions to allow focus on critical tasks
  - Provide a single source of information and standard communication protocols
  - Offload the need to retrieve, retain, and record information
  - Weed out extraneous information

Adapted after: Radiation Risk Communication in Fukushima from an STS Perspective Gregory Clancey, National University of Singapore, 2019
https://www.healthcareitnews.com/news/5-point-communication-strategy-help-reduce-clinicians-cognitive-load

Timeline of STS Projects and Medical Physics (NA21)

NA9/16	2013. JUL [Singapore] Singapore Conference	2013. NOV [Fukushima] FMU International Conference	2014. JUL [Fukushima] FMU Technical Conference Meeting	2014. DEC [Fukushima] FMU Consultancy Meeting + STS Workshop	
NA9/17	2013. JUN [Vienna] Technical Meeting 1	2013. OCT [Vienna] Technical Meeting 2	2014. JAN [Vienna] Technical Meeting 3	2014. MAY [Vienna] Technical Meeting 4	
NA21	2014. MAY [Vienna] 1st Consultancy Meeting	2014. OCT [Vienna] 2nd Consultancy Meeting	2014. NOV [Vienna] 3rd Consultancy Meeting		
NA9/24	2015. MAY and JUN [Fukushima] FMU Training and Workshop 1	2016. MAR [Fukushima] FMU STS Training Workshop 2	2016. MAR [Fukushima] FMU Conference	2016. APR Translation of STS Handbook to Japanese	2017. AUG [Fukushima] Consultancy Meeting
NA39	2019. JAN [Fukushima] Consultancy Meeting	2019. MAY [Fukushima] Technical Meeting	2019. DEC [Vienna] Consultancy Meeting	2020. OCT [Virtual] Consultancy Meeting	2021. NOV [Hiroshima] Technical Meeting
1 Year Extra-Budgetary Project	2022. JUN [Virtual} Consultancy Meeting	2022. NOV [Belgium] Hybrid Technical Meeting	2023. 1st Quarter [Virtual] Consultancy Meeting		

International Network 2012 - 2022

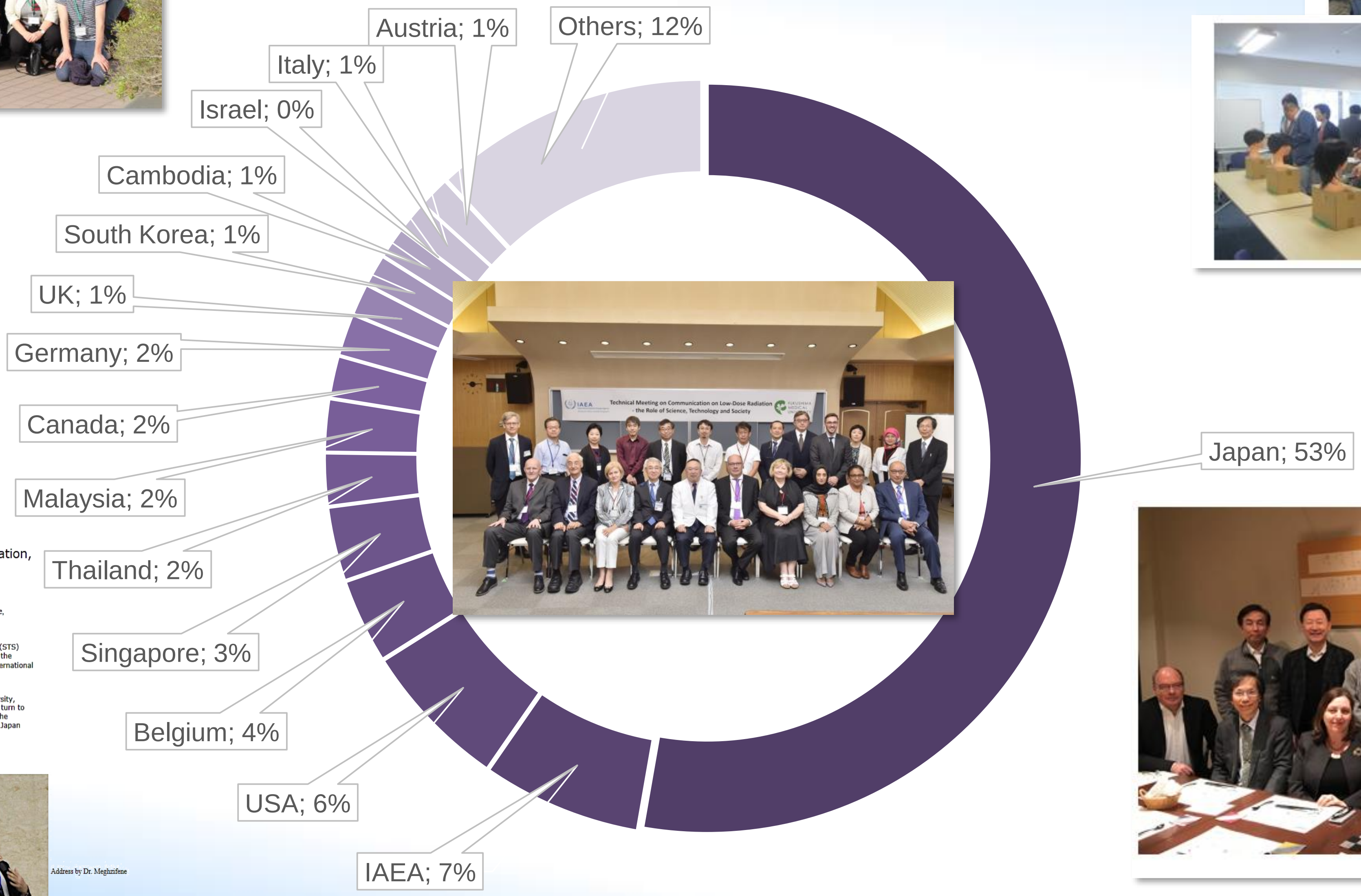


<u>CM and TM 2020:</u>
+ Brazil, Egypt, Ukraine

<u>TM November 2021:</u>
+ Norway, Russia, Kazakhstan, Philippines

<u>CM June 2022</u>
+ Belgium (3 SCK CEN and 4 Academic)

International Network 2013 - 2022



1st Technical Meeting on "Science, Technology, and Society (STS) Perspectives on Nuclear Science, Radiation, and Human Health: The View from Asia"

1st Technical Meeting on "Science, Technology, and Society (STS) Perspectives on Nuclear Science, Radiation, and Human Health: The View from Asia" was held.

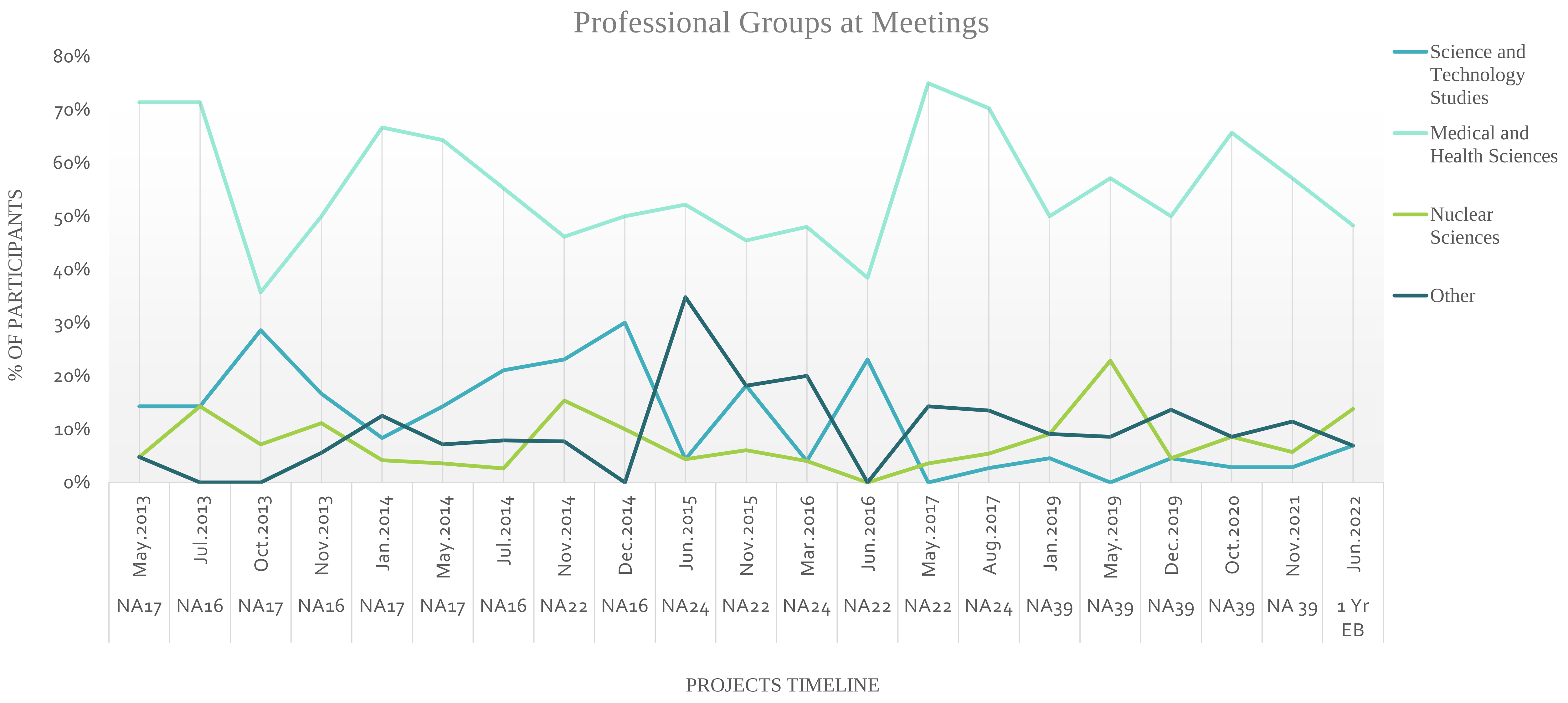
Hiroshima University held the 1st Technical Meeting on "Science, Technology, and Society (STS) Perspectives on Nuclear Science, Radiation, and Human Health: The View from Asia"under the assistance of the Ministry of Foreign Affairs on 27th and 28th of November 2014 at the International Conference Center Hiroshima.

This meeting is hosted by the International Atomic Energy Agency, IAEA. Hiroshima University, Nagasaki University and the National University of Singapore, these three institutions take turn to organize it for over the next three years. This time Hiroshima University was in charge of the meeting and about 200 people including researchers and students from inside and outside Japan attended the meeting.

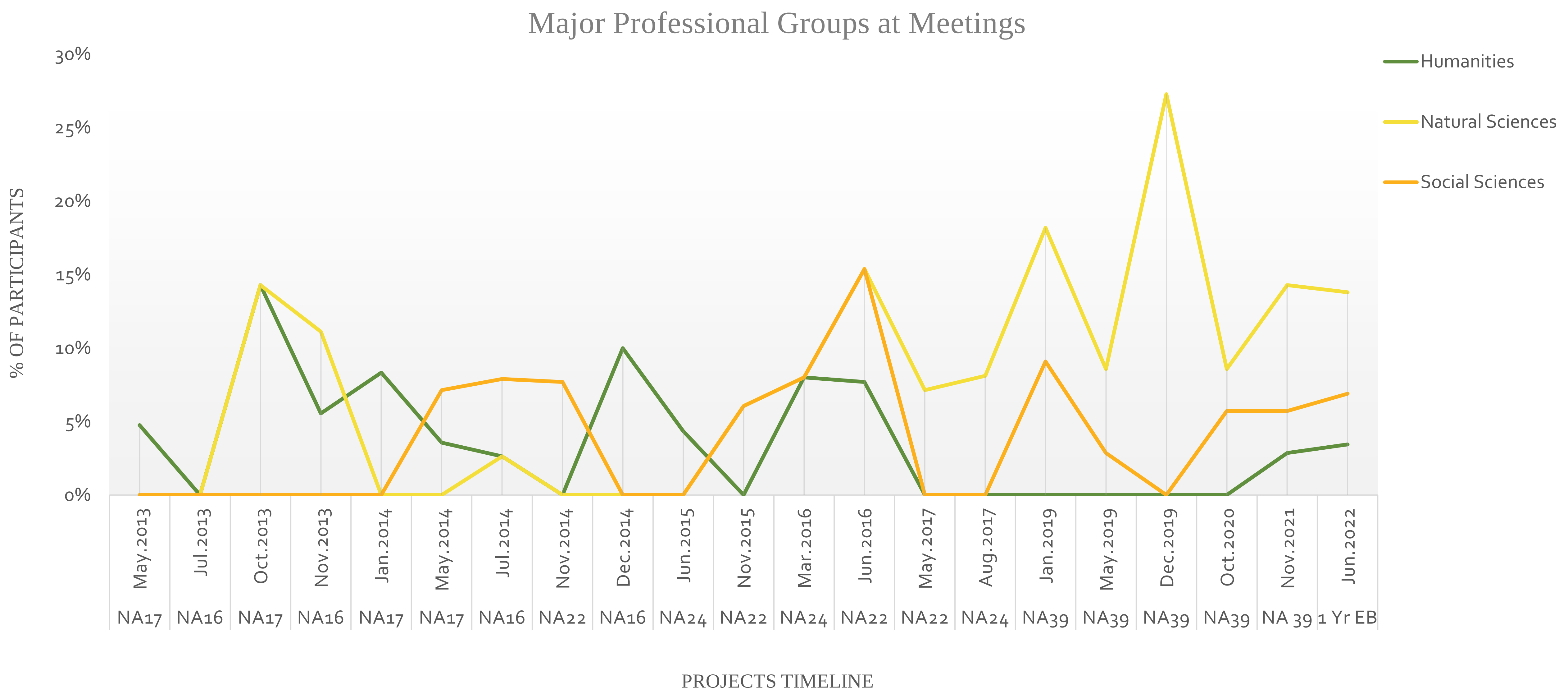
Address by President Asahara

Address by Dr. Meghzifene

Distribution of Specialization for TM and CM 2013 - 2022



Distribution of Specialization for TM and CM 2013 - 2022



Training, Workshops and Conferences

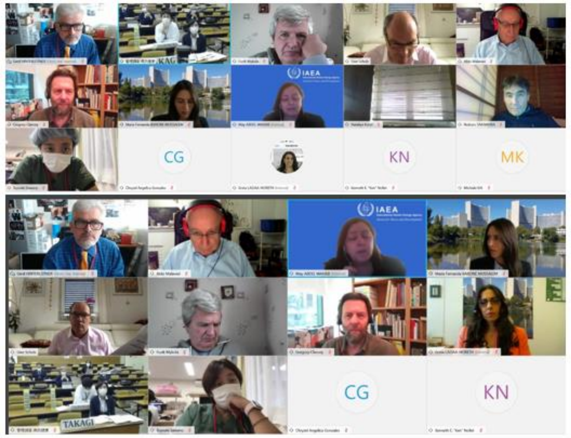
Second Technical Meeting on Science, Technology, and Society Perspectives on Nuclear Science, Radiation, and Human Health: The View from Asia *2015*

Poster session discussion

Debate Panel at FMU TM *May 2019*

Training session at the FMU TM May, 2019

FMU Consultancy Meeting *August 2017*

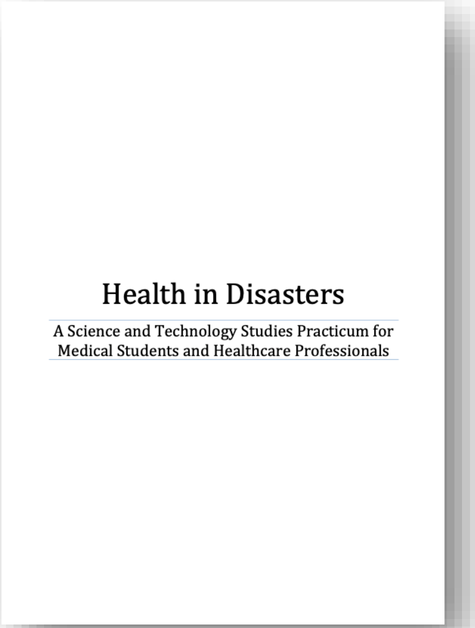


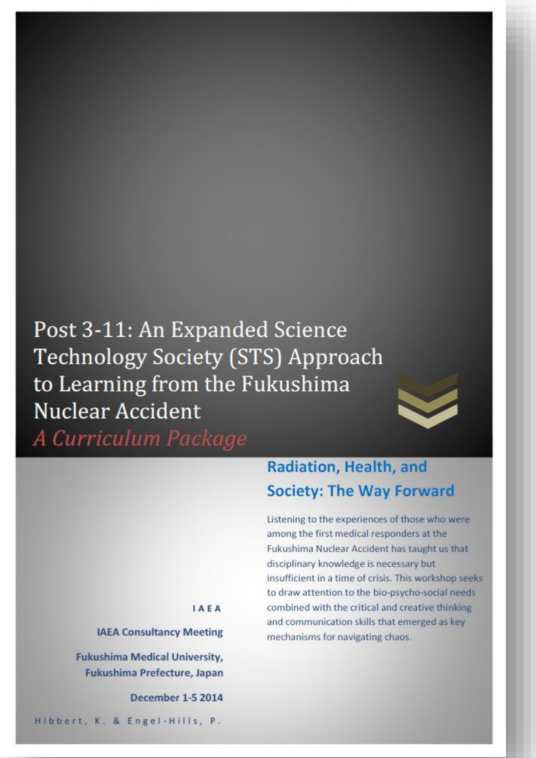
Virtual Consultancy Meeting on October, 2020

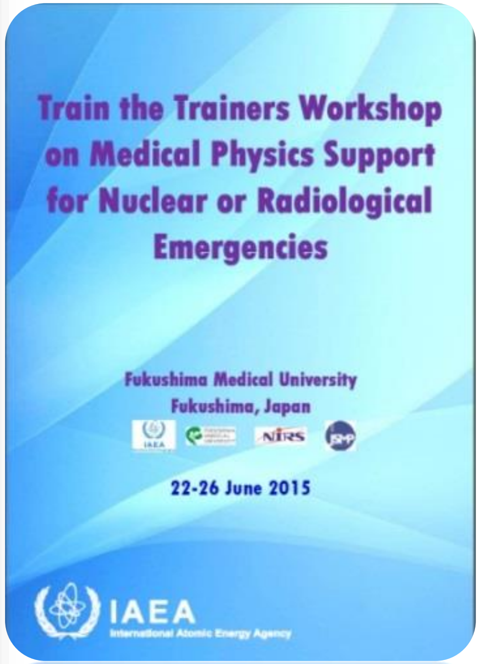
FMU Consultancy Meeting on August, 2017

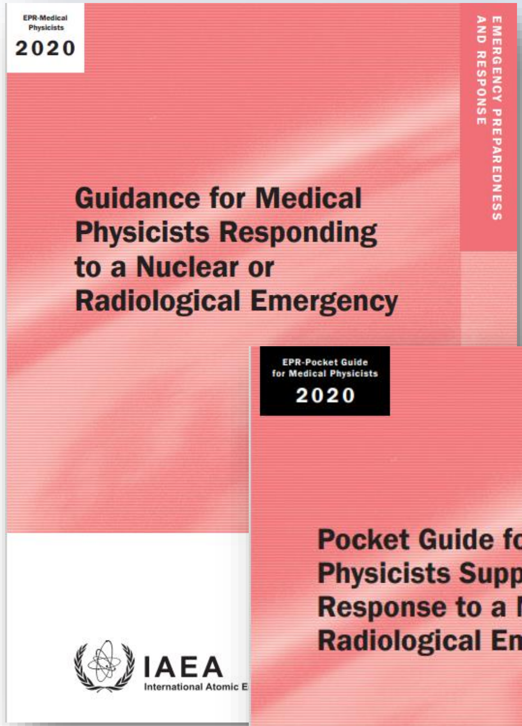
Publications

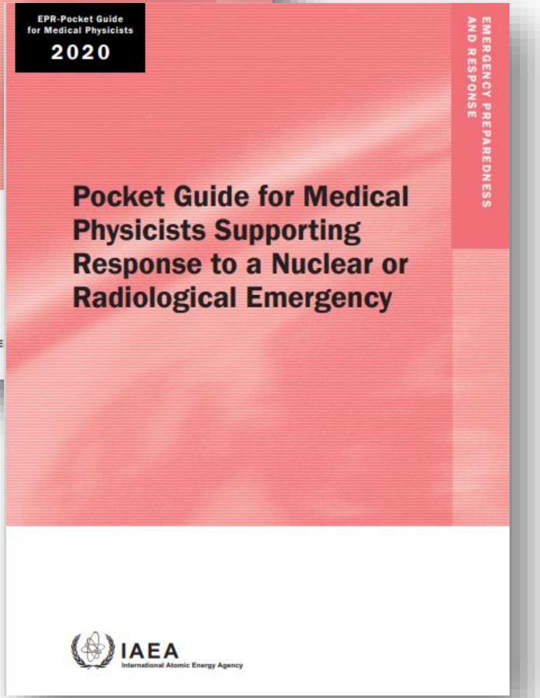
Project Outcomes











STS Curriculum Package
"Health in Disasters: A Science and Technology Studies Practicum for Medical Students and Health Professionals"

Non-IAEA Publications

SAGE journals | Browse | Resources | My Tools | tanigawa | Sign in: My Account | Institution
Advanced

Articles(4)

Refine Search | Sort: Relevance

ARTICLE TYPE
Review Article
Research Article

Roles and Activities of International Organizations After the Fukushima Accident
Koichi Tanigawa, MD, PhD[1], Jacques Lochard, MAS[2], May Abdel-Wahab, MD, PhD[3], Malcolm J. Crick, MA, MSRP[4]
Asia Pacific Journal of Public Health, vol. 29, 2_suppl: pp. 90S-98S., First Published November 15, 2016.
› Show Abstract

Psychosocial Issues Related to Thyroid Examination After a Radiation Disaster
Sanae Midorikawa, MD, PhD[1], Koichi Tanigawa, MD, PhD[2], Satoru Suzuki, MD, PhD[2], Akira Ohtsuru, MD, PhD[1]
Asia Pacific Journal of Public Health, vol. 29, 2_suppl: pp. 63S-73S., First Published March 22, 2017.
› Show Abstract

Academic Responses to Fukushima Disaster
Three New Radiation Disaster Curricula
Kiyotaka Yasui, RN[1], Yuko Kimura, MD, PhD[12], Kenji Kamiya, MD, PhD[3], Rie Miyatani, RN[12], Naohiro Tsuyama, PhD[2], Akira Sakai, MD, PhD[2], Koji Yoshida, PhD[4], Shunichi Yamashita, MD, PhD[5], Rethy Chhem, MD, PhD[6], May Abdel-Wahab, MD, PhD[7], Akira Ohtsuru, MD, PhD[12]
Asia Pacific Journal of Public Health, vol. 29, 2_suppl: pp. 99S-109S., First Published March 22, 2017.
› Show Abstract

The Relationship Between Functional Independence and Psychological Distress in Elderly Adults Following the Fukushima Daiichi Nuclear Power Plant Accident
The Fukushima Health Management Survey
Mayumi Harigane, PhD[1], Yuriko Suzuki, MD, PhD[2], Seiji Yasumura, MD, PhD[1], Tetsuya Ohira, MD, PhD[1], Hirooki Yabe, MD, PhD[1], Masaharu Maeda, MD, PhD[1], Masafumi Abe, MD, PhD[3], on Behalf of the Mental Health Group of the Fukushima Health Management Survey, Masafumi Abe, Shunichi Yamashita, Kenji Kamiya, Koichi Tanigawa, Seiji Yasumura, Makoto Akashi, Kazunori Kodama, Kotaro Ozasa, Hirooki Yabe, Masaharu Maeda, Kenneth E. Nollet, Ohtsura Niwa, Akira Ohtsuru, Shiro Matsui, Shinichi Niwa, Mitsuaki Hosoya, Tetsuya Ohira, Yasuto Kunii, Shuntaro Itagaki, Tetsuya Shiga, Hajime Iwasa, Yuriko Suzuki, Yoko Nakayama, Senta Fujii, Hiroaki Satoh, Shigeatsu Hashimoto, Kanae Takese, Satomi Nakajima, Maho Momoi, Saori Goto, Hirofumi Mashiko, Misao Ohta, Aya Goto, Mitsuru Hisata, Norito Kawakami, Akiko Yagi, Yu-ichi Oiwaka, Yuka Ueda, Mayumi Harigane, Naoko Horikoshi, Yu-ya Kashiwazaki, Go Takeda
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› Show Abstract

Review Article

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Roles and Activities of International Organizations After the Fukushima Accident

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Jacques Lochard, MAS[2],
May Abdel-Wahab, MD, PhD[3],
and Malcolm J. Crick, MA, MSRP[4]

Abstract
After the March 2011 Fukushima Daiichi Nuclear Power Plant accident, overseas experts and representatives of international organizations visited Japan to provide advice, technical support, and resources. Several international meetings on radiological protection and health issues have since been held in Fukushima to provide further advice. The content discussed has changed alongside local developments in health-related issues from radiation health effects and radiological protection to risk communication and psychological, public health, and social

Table 1. Change in Radiation Disaster–Related Medical Curriculum Following the Fukushima Disaster.[a]

Before Disaster (Total 6 Hours)	After Disaster (Total 82.5 Hours)
	First year: Lecture The Great East Japan Earthquake and Nuclear Power Plant accident (2)
Third year: Lecture and PBL A part of Medical Physics (3)	Third year: Lecture and PBL A part of Medical Physics (3) Radiation Bioscience and Medicine (20) PBL (9)
Fourth year: Lecture A part of Radiology (1.5): Radiation protection A part of Emergency Medicine (1.5): Disaster medicine	Fourth year: Lecture- A part of Radiology (1.5): Radiation protection A part of Emergency Medicine (2): Disaster medicine
	Fifth year: Exercise Radiation Disaster and Health Management Training (42)
	Sixth year: Lecture Clinical Summary Lecture (3)

[a]Numbers in parentheses indicate the length of the lecture in hours, problem-based learning (PBL), and exercise.

Original Article

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Psychosocial Issues Related to Thyroid Examination After a Radiation Disaster

Sanae Midorikawa, MD, PhD[1], Koichi Tanig… PhD[2],
Satoru Suzuki, MD, PhD[2], and Akira Ohtsu…

Abstract
A thyroid ultrasound examination program has been co…
Daiichi Nuclear Power Plant accident to address co…
cancer similar to those experienced by local residen…
the second-largest thyroid cancer screening in you…
after Chernobyl. As the natural history of thyro…
characterized, large-scale screening using thyroid…
with careful planning, as has been experienced in…
gland is generally low among residents, who te…

Review Article

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Academic Responses to Fukushima Disaster: Three New Radiation Disaster Curricula

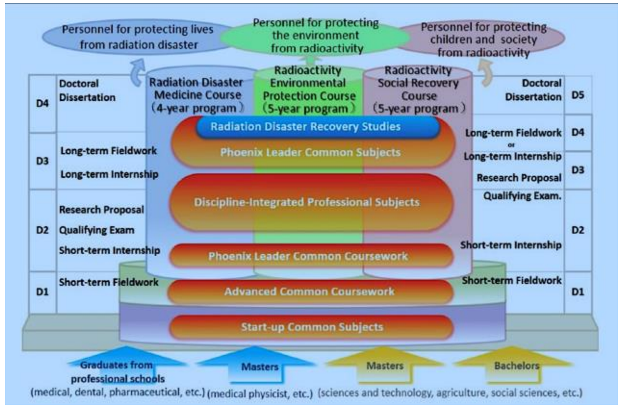
Kiyotaka Yasui, RN[1], Yuko Kimura, MD, PhD[1,2],
Kenji Kamiya, MD, PhD[3], Rie Miyatani, RN[1,2],
Naohiro Tsuyama, PhD[2], Akira Sakai, MD, PhD[2],
Koji Yoshida, PhD[4], Shunichi Yamashita, MD, PhD[5],
Rethy K. Chhem, MD, PhD[6], May Abdel-Wahab, MD, PhD[7],
and Akira Ohtsuru, MD, PhD[1,2]

Abstract

New Medical Curricula

FMU, Hiroshima University and Nagasaki University

<u>Radiation disaster medicine</u> for medical students at the Fukushima Medical University, together with a science, technology, and society module comprising various topics, such as public risk communication, psychosocial consequences of radiation anxiety, and decision making for radiation disaster.



<u>Phoenix Leader PhD degree</u> at the Hiroshima University, which aims to develop future leaders who can address the associated scientific, environmental, and social issues.

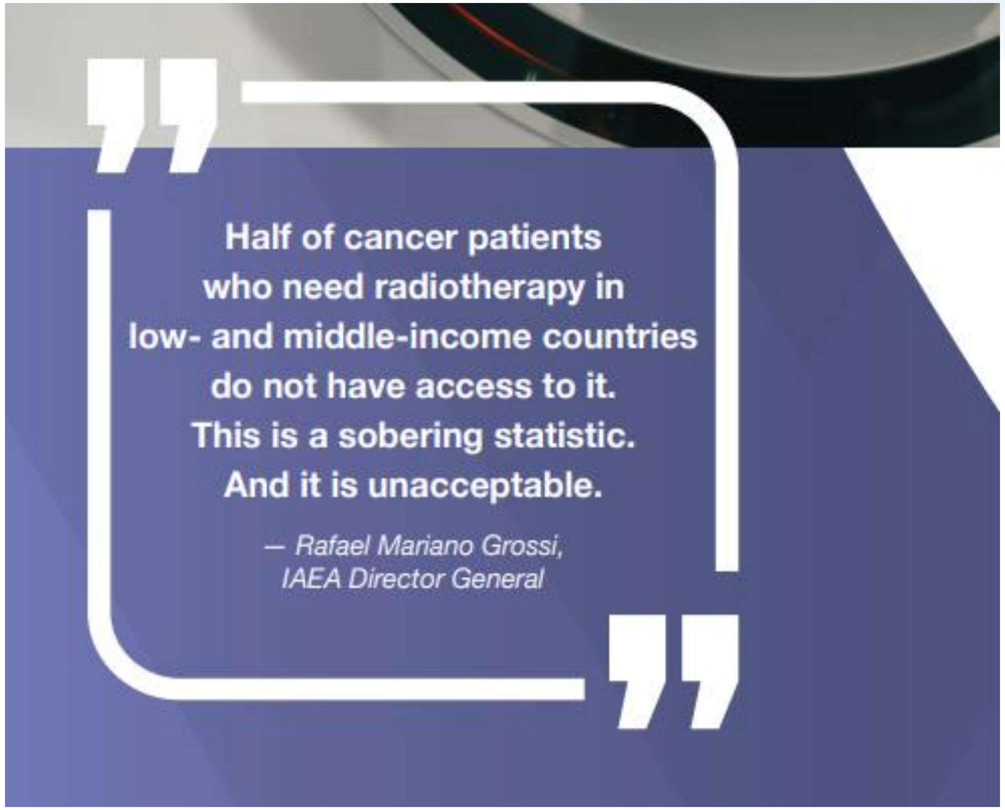
<u>Joint Graduate School of Master's degree</u> in the Division of Disaster and Radiation Medical Sciences at the Nagasaki University and Fukushima Medical University.

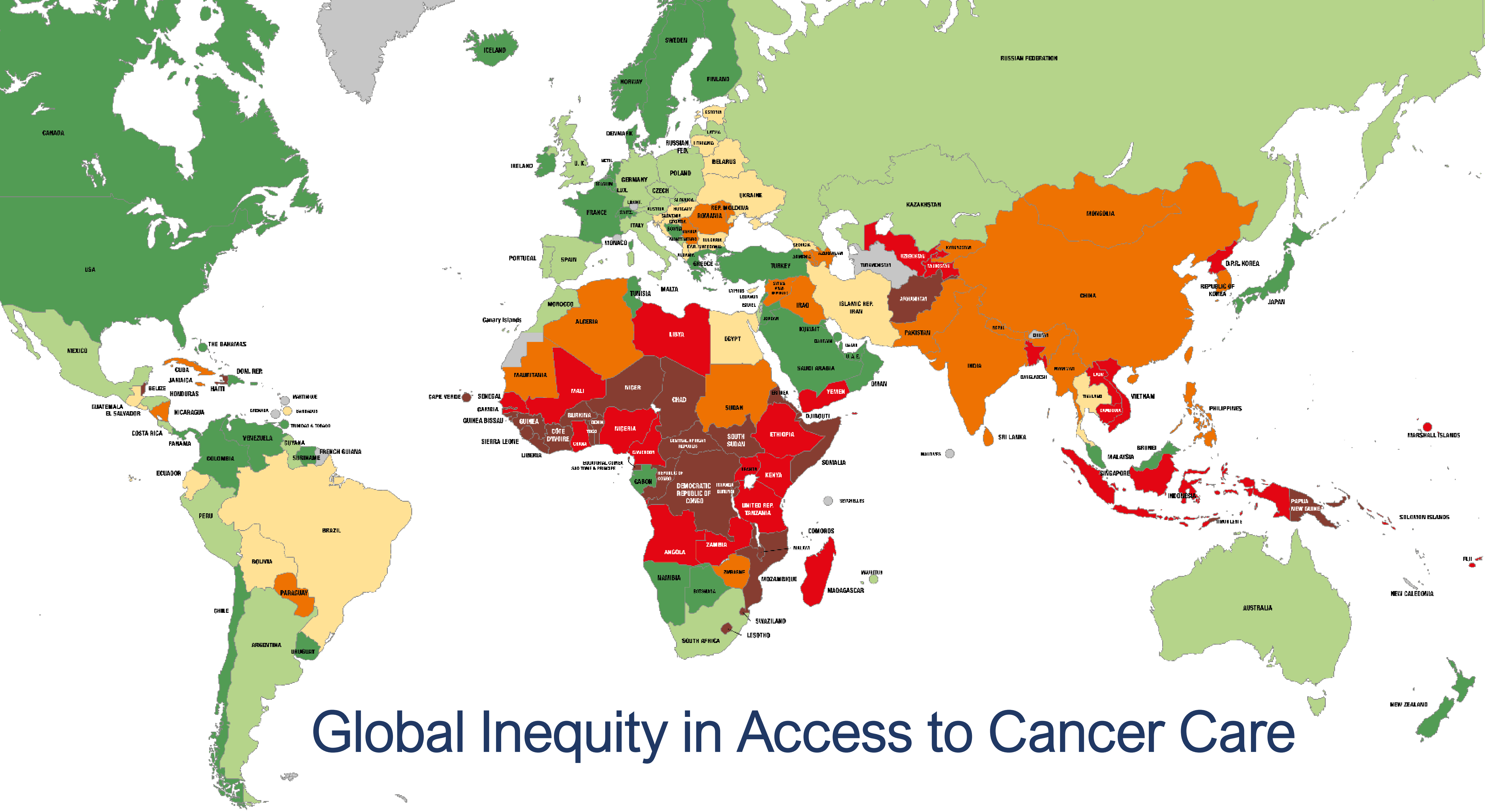
Source: Adapted from APJPH 2017 (29)2s: 99-109

Transdisciplinary Approach

Source: Adapted from K. Kamiya and Hiroshima University. The 2nd Symposium of Phoenix Leader Education Program Industry-Academia-Government Consortium for Human Resource Development. "Building a Human Resource Development System and Network for the Recovery from a Radiation Disaster"

Rays of Hope - Leaving no country behind

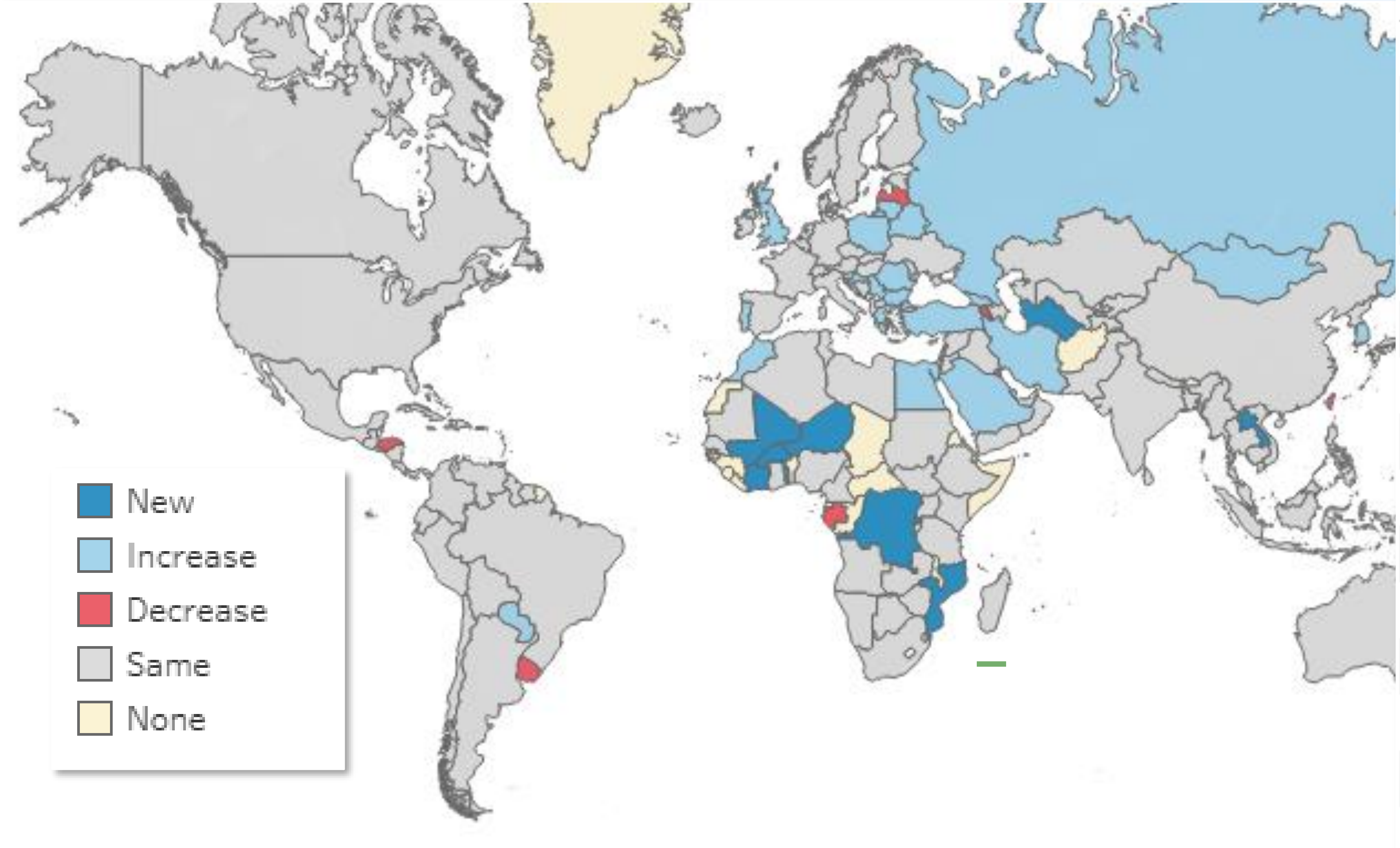




Global Inequity in Access to Cancer Care

Difference in Equipment /Million Population 2013-2021

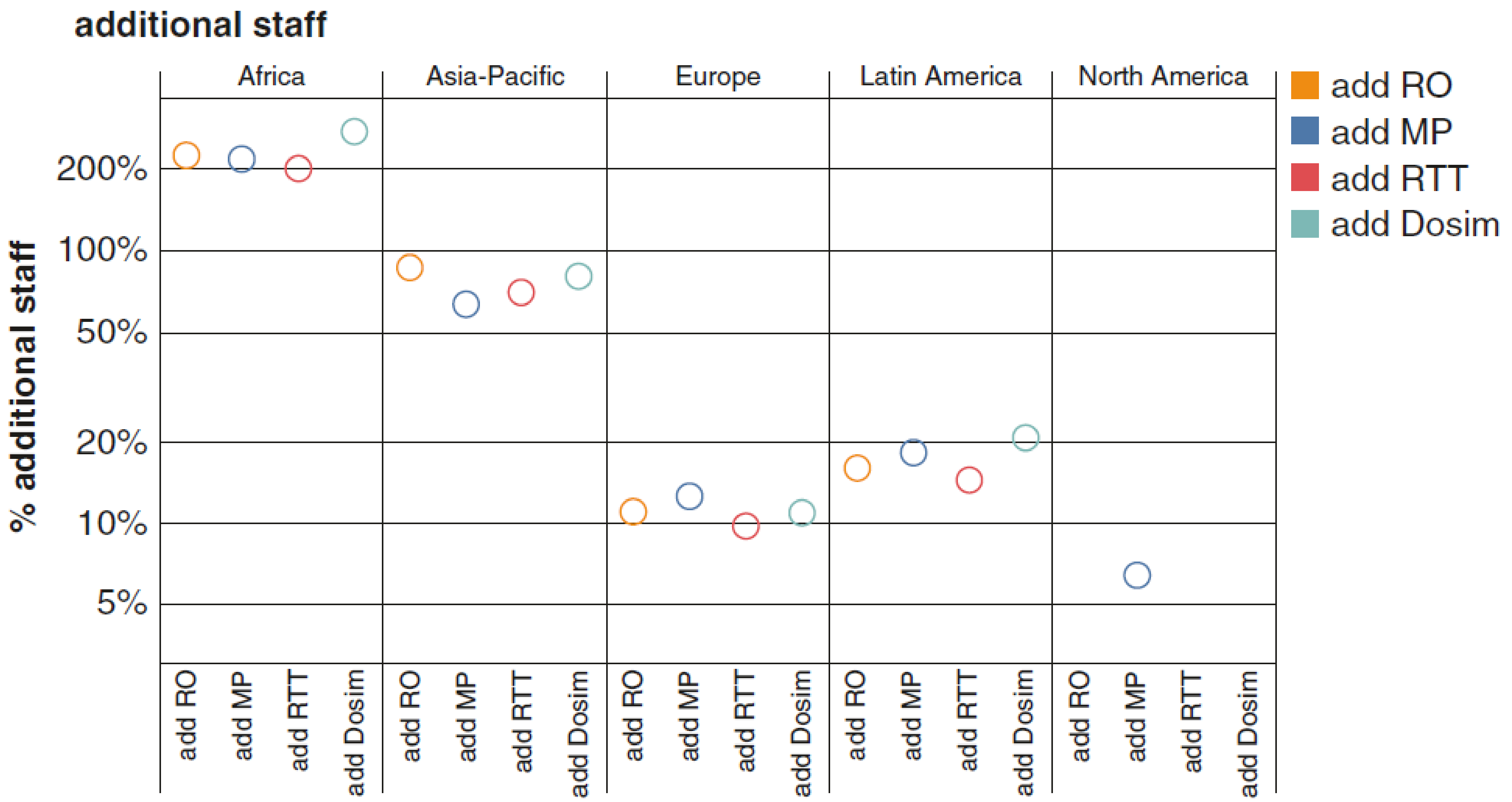
IAEA



RegionName	MV_2013	UNPopulation_2013	EquipmentPerMillion..	MV_2021	UNPopulation_2021	EquipmentPerMillion..
01. North America	4,243	352,366,531	12.041	4,050	368,744,804	10.983
02. Mexico and Central America	168	168,171,560	0.999	210	179,670,186	1.169
03. Tropical South America	559	346,518,924	1.613	612	362,970,576	1.686
04. Temperate South America	182	63,522,106	2.865	188	67,785,713	2.773
05. Caribbean	56	42,292,435	1.324	82	43,322,324	1.893
06. Western Europe	2,647	412,629,794	6.415	2,873	424,583,101	6.767
07. Eastern Europe and Norther..	899	406,510,616	2.212	1,195	414,247,644	2.885
08. North Africa	145	177,073,961	0.819	230	202,383,239	1.136
09. Middle Africa	55	874,326,621	0.063	82	1,055,842,229	0.078
10. Southern Africa	81	76,171,505	1.063	110	82,366,574	1.335
11. Middle East	390	308,411,238	1.265	540	346,538,143	1.558
12. South Asia	606	1,697,994,102	0.357	789	1,856,376,652	0.425
13. East Asia	2,661	1,574,832,845	1.690	3,856	1,678,089,627	2.298
14. Southeast Asia	244	618,361,110	0.395	392	668,197,791	0.587
15. Southern and Western Pacific	167	38,401,388	4.349	257	42,955,340	5.983

Difference in Equipment Distribution / Million Population 2013 - 2021

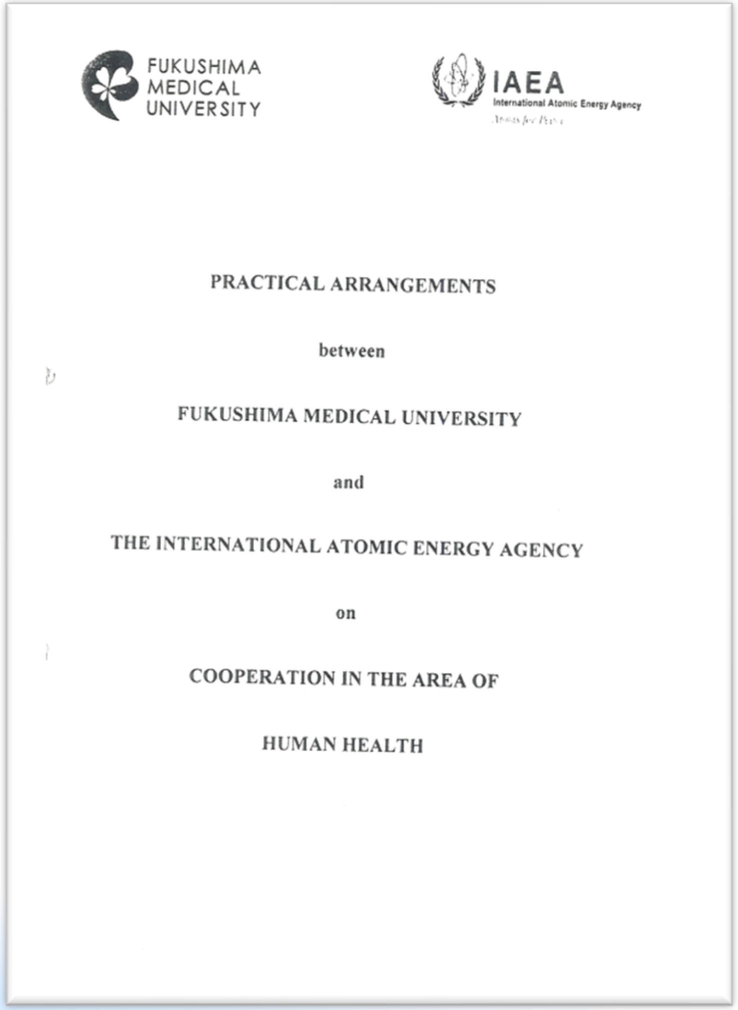
Additional Staff needed by Region



Radiotherapy in global health” Abdel-Wahab M et al in "Radiology in Global Health: Strategies, Implementation, and Applications, 2e"Springer 2018

Practical Arrangements

Collaborating Centres


FUKUSHIMA MEDICAL UNIVERSITY

IAEA International Atomic Energy Agency

PRACTICAL ARRANGEMENTS

between

FUKUSHIMA MEDICAL UNIVERSITY

and

THE INTERNATIONAL ATOMIC ENERGY AGENCY

on

COOPERATION IN THE AREA OF

HUMAN HEALTH

Japanese Centre, IAEA Increase Collaboration in Training in Nuclear Medicine and Radiation Oncology

FMU

QST

HICARE

Comprehensive Approach Together with the Country

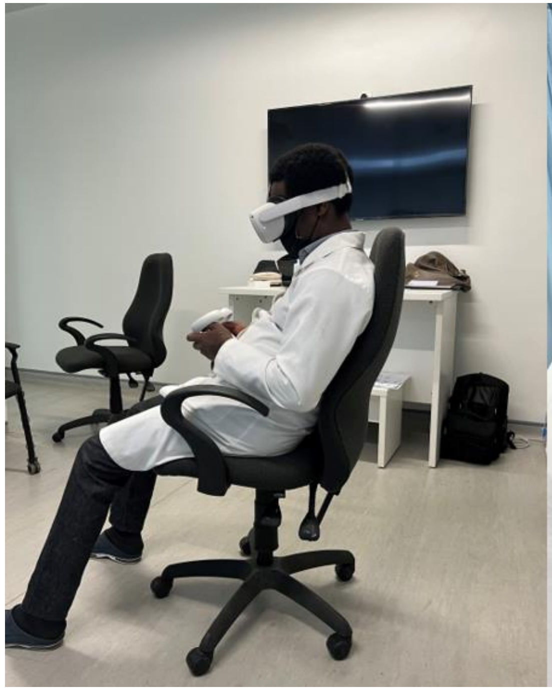
Rays of Hope:

- Supporting Access
  - Technical assessments and economic evaluations;
  - Equipment
  - Capacity building – technology transfer & training;
- Sustainability Regional Anchor Centres
- Innovation through R&D

https://www.iaea.org/sites/default/files/19/10/milestones-document-2019.pdf

Innovation: Catalyzing education and training

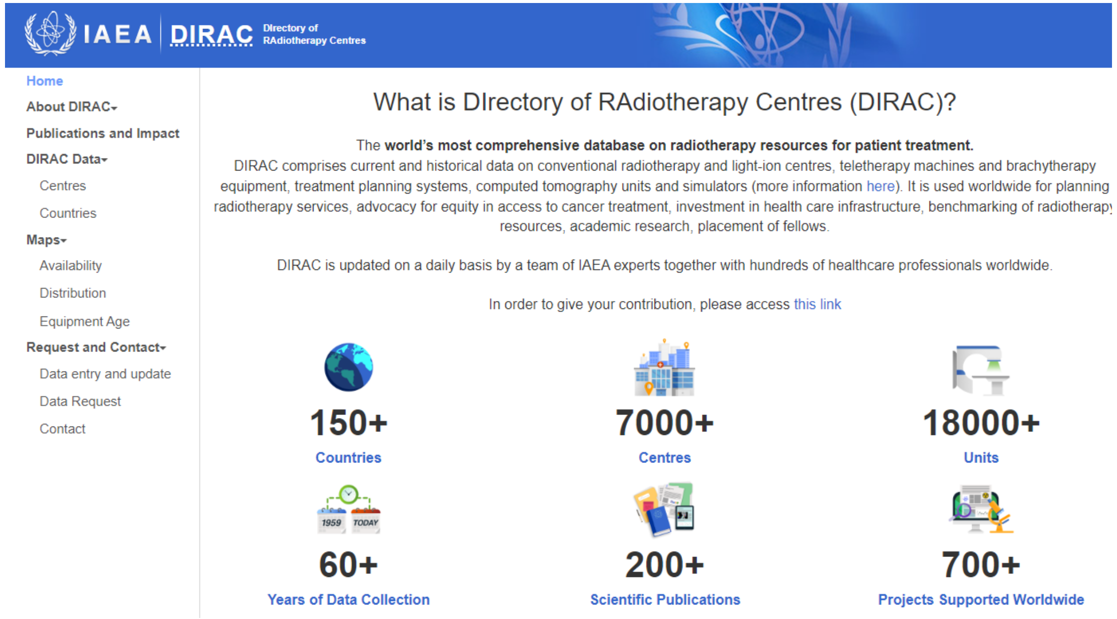
State-of-the-art learning platforms and approaches that advance education and training can ***accelerate*** *the speed and scale of progress in the global fight against cancer*



As innovative, cost-effective training tools, the IAEA’s virtual models are especially advantageous when the necessary medical equipment is unavailable or has not yet been commissioned for clinical use. By enabling professionals in resource-challenged contexts to train in an immersive learning environment, they **help close global knowledge gaps**.

Innovation: Generating novel insights

Global databases that generate novel insights for targeted action
*can **accelerate** the speed and scale of progress in the global fight against cancer*


IAEA DIRAC Directory of RAdiotherapy Centres

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Maps
Availability
Distribution
Equipment Age
Request and Contact
Data entry and update
Data Request
Contact

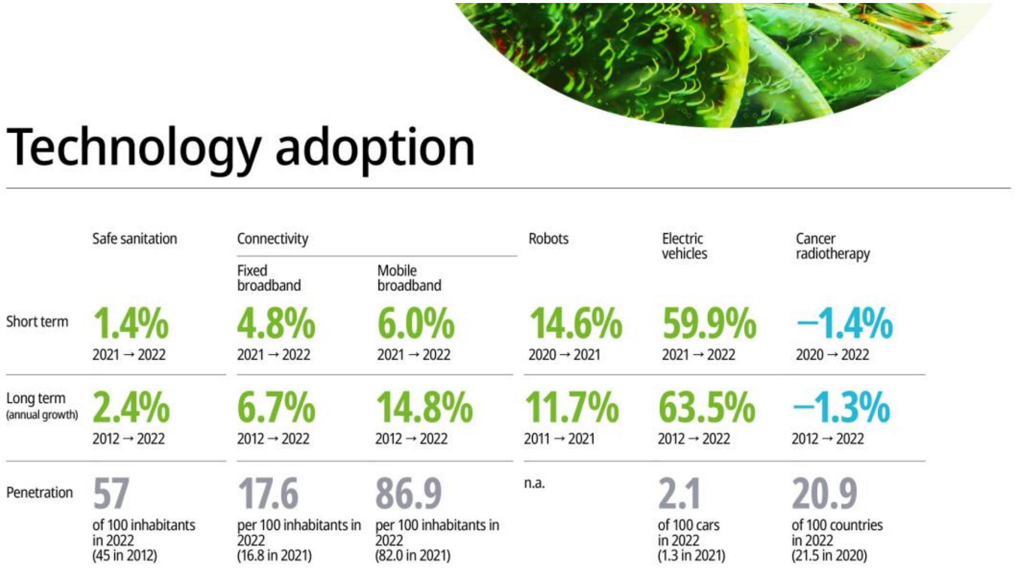
What is DIrectory of RAdiotherapy Centres (DIRAC)?

The **world's most comprehensive database on radiotherapy resources for patient treatment.**
DIRAC comprises current and historical data on conventional radiotherapy and light-ion centres, teletherapy machines and brachytherapy equipment, treatment planning systems, computed tomography units and simulators (more information here). It is used worldwide for planning radiotherapy services, advocacy for equity in access to cancer treatment, investment in health care infrastructure, benchmarking of radiotherapy resources, academic research, placement of fellows.

DIRAC is updated on a daily basis by a team of IAEA experts together with hundreds of healthcare professionals worldwide.

In order to give your contribution, please access this link

150+ Countries
7000+ Centres
18000+ Units
60+ Years of Data Collection
200+ Scientific Publications
700+ Projects Supported Worldwide


Technology adoption

	Safe sanitation	Connectivity: Fixed broadband	Connectivity: Mobile broadband	Robots	Electric vehicles	Cancer radiotherapy
Short term	1.4% 2021 → 2022	4.8% 2021 → 2022	6.0% 2021 → 2022	14.6% 2020 → 2021	59.9% 2021 → 2022	−1.4% 2020 → 2022
Long term (annual growth)	2.4% 2012 → 2022	6.7% 2012 → 2022	14.8% 2012 → 2022	11.7% 2011 → 2021	63.5% 2012 → 2022	−1.3% 2012 → 2022
Penetration	57 of 100 inhabitants in 2022 (45 in 2012)	17.6 per 100 inhabitants in 2022 (16.8 in 2021)	86.9 per 100 inhabitants in 2022 (82.0 in 2021)	n.a.	2.1 of 100 cars in 2022 (1.3 in 2021)	20.9 of 100 countries in 2022 (21.5 in 2020)

WIPO's 2023 Global Innovation Index

Data from IAEA DIRAC helped bring attention to an alarming trend: *cancer cases requiring radiotherapy are outpacing available technology.*

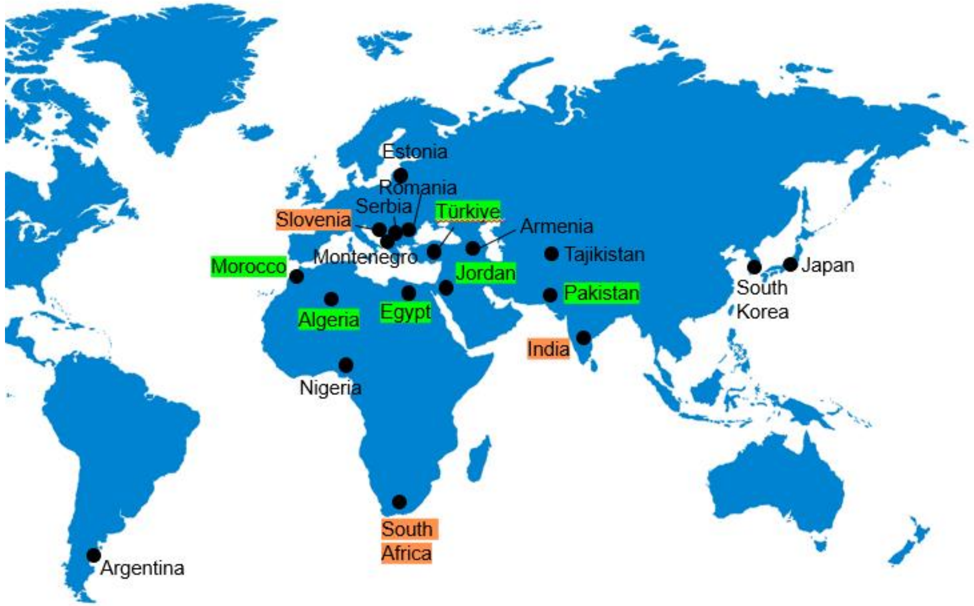
Supporting Rays of Hope Anchor Centres

Anchor Centres – which serve as capacity building and knowledge hubs – can ***upscale global access*** *to cancer care by* ***advancing innovation*** *at the regional and global level, together with the IAEA*

To enable them to effectively perform this critical work, these Centres need support on:

- Education and training
- Research
- Quality assurance
- Technology
- Equipment
- Resource mobilization

Rays of Hope - Regional Anchor Centres



New STS Project:
Medical Doctors' Radiation Education and Communication

Objective

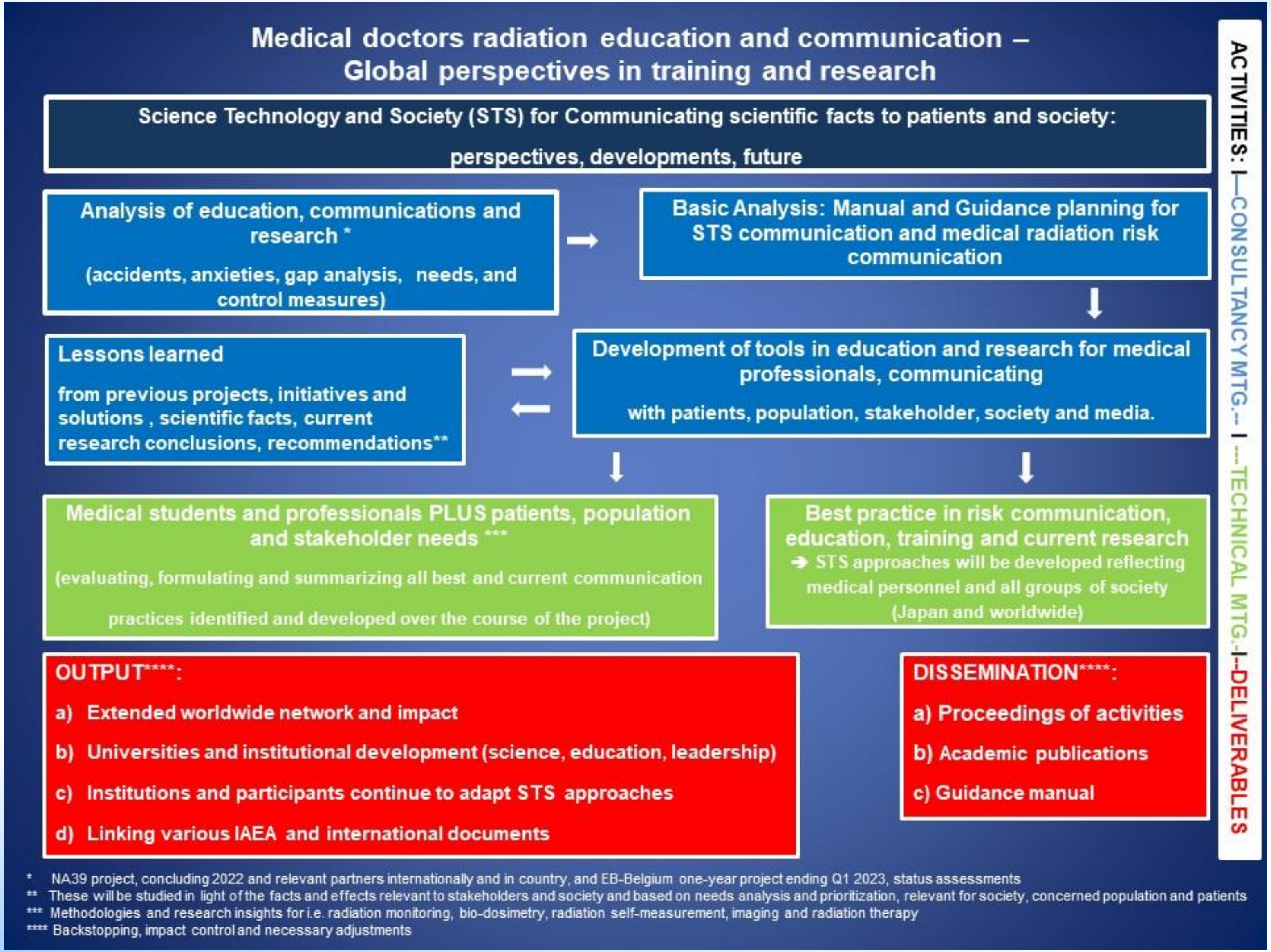
Develop and train, radiation knowledge with relevance for medical personal, and patients.

Experience with radiation risk communication including teaching and training concepts can be readily used.

Guidance manuals for building capacity will be developed and updated, based on Japanese and international expertise.

Experience in Japan, Asia and internationally will benefit trainees from all participating RoH countries, thereby supporting improved doctor – patient relationship in radiation therapy communication and education.

Medical Doctors' Radiation Education and Communication



Scope

Train and apply radiation knowledge for medical personal.

Respective communication skills related to radiation exposure will be taught.

Focus on present conditions and what is desired/ foreseen by population and local and regional stakeholders.

Medical communication should focus on measures to enhance populations' general trust in medical services.

Conclusions

Successful risk communication must examine and compare the effects of risk perception and tailor risk messages considering the person's cultural background.

It is crucial to understand how patients as well as local population concerned with radiation effects process information’s based on their specific and individual mind set and their overall and universal processing of information’s in the human brain.

Efficient way to improve communication and promote mutual understanding between concerned population, patients and doctors is via education and interpersonal skills training.

Together, we will continue to build on past achievements and the experience of our colleagues from Japan and other countries world-wide including, while presenting and evaluating our diverse experiences


Thank you!

2024年 福島県立医科大学『県民健康調査』国際シンポジウム
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2024 Fukushima Medical University International Symposium on the Fukushima Health Management Survey
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