RADIATION EMERGENCY MEDICAL PREPAREDNESS AND ASSISTANCE NETWORK

REMPAN e-NEWSLETTER

World Health Organization

Issue 21 July, 2020

Editorial

Dear REMPAN Colleagues,

this is a different issue of the Newsletter in the sense of reflecting the most unconventional on-going situation we are living in today. The tall of the COVID19 pandemic on human lives, health, wellbeing is unprecedented. The pandemic's impact puts the entire humankind and the very humanity on trial. With tremendous sadness we express our condolences to our colleagues around the world who lost their loved ones, friends, family members or fellow colleagues health workers who died while saving lives of their patients and fighting the virus in the front lines… May their names be never forgotten.

The pandemic is teaching us a lot. It shows where the real threats to our security lie, it reveals the weaknesses in our global economic and political systems and identifies some important lessons for future action on climate change, for health security, for readiness and surge capacities of health systems and human resources. It shows our interconnected vulnerabilities and capacities, reminding us that global problems respect no borders and demand global solutions.

Meanwhile, we are adapting to the "new normal". We made our respective adjustments and after five months of working from home, which seems to be the case for most of us, we got used to this situation which is gradually become to feel normal. We are working remotely and used to virtual meetings, we manage to produce results and stay connected, we learned a lot about ourselves, we learnt patience and compassion, and we seem even more physically active! New normal is not easy but it is not impossible. In this issue of our eNewsletter you can see this clearly.

I hope despite the challenges and travel restrictions, you will still be able to enjoy summer holidays, remain physically active and explore your respective countries and regions.

With gratitude for your contributions and continuing support,
I wish you a wonderful summer break!
Zhanat CARR

In this issue:

News – From REMPAN Secretariat

In the first half of 2020, the WHO REMPAN Secretariat implemented the following activities:

◆ On 12-13 Feb, 2020, Dr Zhanat Carr participated in the 4th International Symposium organized by the Joint Usage/Research Center for Radiation Disaster Medical Science of Hiroshima University, Nagasaki University, and Fukushima Medical University and hosted by the REMPAN Liaison Institute Hiroshima University in Hiroshima, Japan. The symposium focused on the issues of risk communication and social impact of radiological disasters and radiation protection studies. She presented the on-going joint work of the WHO Radiation programme and the WHO Mental Health in Emergencies programme towards developing a new framework on mental health and psychological support systems for response to nuclear emergencies.

Photo: participants of the 4th Int Symposium at the Joint Usage/Research Center for Radiation Disaster Medical Science of Hiroshima University ◆

◆ On Feb 14, 2020, Dr Carr visited one of the oldest the WHO Collaborating Centers in Japan – the Radiation Effects Research Foundation (RERF), the world's leading research facility in the area of radiation epidemiology, radiation dosimetry, and radiation biology. Bilateral discussion focused on the terms of reference for the collaboration with the WHO, planning of the activities, and exchange of information. Dr Carr delivered a seminar for the RERF staff and visited new bio-sample bank facility at the RERF featuring a unique robotic freezer.

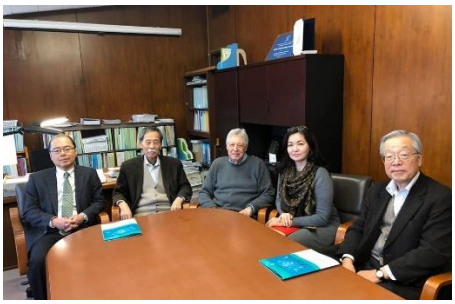


Photo: the moments from the bilateral meeting with the RERF colleagues. ◆

Events Postponed or held virtually due to COVID19

◆ Several events planned for the first half of 2020 where WHO Secretariat's participation was planned, were either postponed, cancelled, or held electronically via Zoom or Webex due to the on-going COVID19 pandemic, including:

- the meeting of **HERCA Working Group for Emergencies** was cancelled;
- the annual meeting of the **NEA/OECD Committee for Radiation Protection and Public Health** was postponed until September 2020;
- **WHO-NEA-BfS joint Workshop** on management of non-radiological health impact of radiological and nuclear emergencies, planned to be held in Munich on 18-20 March 2020 was postponed until 2021;
- the **6th NERIS annual workshop** planned for April 2020 was cancelled;
- the **16th REMPAN Coordination and Planning meeting** planned for May 2020 to be held in Seoul as a satellite event of the **IRPA15 Congress**, both events postponed to January 2021;
- **IAEA's Competent Authorities meeting** was held via Webex on 15 to 18 June 2020;
- The 10th Meeting of the **IAEA's Emergency Preparedness and Response Standards Committee** (EPReSC) was held virtually on July 15 2020
- the annual meeting of the Global Health Security Initiative's (**GHSI) Working Group on Medical Countermeasures against Rad-Nuc Threats** was held virtually on July 20, 2020
- **Technical Meeting on the Revision of the GSG-2.1** Arrangements for Preparedness for a Nuclear or Radiological Emergency was held virtually on 20-24 July 2020

Photo credit: The Guardian

News – From REMPAN Secretariat

◆ WHO is leading global response to COVID19 pandemic.

July 30 2020 marked six months since the beginning of the unprecedented pandemic that affected almost 16 million people and claimed 640 thousands of lives world-wide. This is the worst pandemic we have ever seen. WHO staff working tirelessly on COVID19 emergency response covering its' all possible aspects. The detailed account of WHO's actions and timeline of the response is available on line.

#ProudToBeWHO: watch the YouTube video of WHO colleagues leading the response to the global pandemic

Massive amount of technical resources for managing the pandemic is made available to the professional community, mass media and public (see p.13).

◆ The WHO Radiation and Health Unit developed a set of rapid guidance recommendations on the use of radiation in health facilities for COVID-19 management, including clinical applications, safety procedures and technical specifications for procurement of radiological devices (see p. 13).

◆ Joint webinars with NEA, WHO and BfS, Germany on Mitigating the psychosocial impacts of radiation emergencies

By **J. Garnier-Laplace (NEA), M. Zahringer (BfS), F. Hanna and Z. Carr (WHO)**

The Nuclear Energy Agency (NEA/OECD) Expert Group on Non-Radiological impact of nuclear emergencies (ENGR) chaired by M. Zahringer (BfS, Germany) is working with WHO towards developing an operational approach for mitigating the mental health and psychosocial impacts of radiation emergencies. In this regard, the EGNR co-organized two joint webinars with WHO and BfS on **26 June and 10 July 2020** to explore the mitigation of the psychological impacts of various types of crises, such as the COVID-19 pandemic, natural disasters and nuclear accidents. While there is no one-size-fits-all approach, the panelists agreed on the need for a generic operational framework that addresses mental health and psychosocial (MHPS) needs arising due to radiological emergencies. This framework should build upon and integrate the existing international guidance for managing MHPS impacts of emergencies and disasters allowing for adaptation to regional, cultural, social and economic specifics of an emergency situation.

WHO is currently completing the new Framework for MHPS support in radiological and nuclear emergencies, which will support decision making and expand the scope of planning for efficient response, which should become possible through the shift from a radiological protection-centered strategy to a more holistic view of health protection that also includes mental health and psychosocial support. More information is coming soon. ◆

NEA NUCLEAR ENERGY AGENCY

Bundesamt für Strahlenschutz

World Health Organization

News – From REMPAN Secretariat

SHARE
Social sciences and Humanities in ionising radiation REsearch

SHARE – Platform for Social Sciences and Humanities (SSH) research relating to Ionizing Radiation (IR).

During the confinement period SHARE offered series of joint topical webinars, highly relevant to REMPAN's area of interest.

Several REMPAN experts have participated and contributed to some of these webinars. Webinars materials available for review and download:

SHARE Webinar: Lessons we are learning from the COVID-19 pandemic for radiological risk communication (19/03/2020)

SHARE Webinar available: Lessons we are learning from the COVID-19 pandemic for radiological risk communication (01/04/2020)

The 2nd SHARE Webinar: Balancing action and longer-term outcomes during a time of crisis (16/04/2020)

Joint SHARE-NERIS webinars:

SHARE-NERIS Webinar: Key challenges for managing a transition phase: lessons from Chernobyl and Fukushima accidents (13/05/2020)

SHARE-NERIS Webinar on Chernobyl wildfires (28/05/2020) – see p. 5

NERIS

Scientific Events

◆2nd International Symposium convened by Fukushima Medical University

By **Dr. SAITO Kiyoshi** - Vice President of Fukushima Medical University
2nd International Symposium, 2021

The Radiation Medical Science Center for the Fukushima Health Management Survey had its 2nd International Symposium on 02-03 February, 2020 in Fukushima City for Fukushima residents, health and medical workers, students, teachers, and government officials.

This international symposium was held to deepen the understanding of residents about the "Fukushima Health Management Survey (FHMS)" and to share experiences and knowledge from around the world. The theme of 2nd International Symposium was "Build Back Better, Together. Fukushima Health Management Survey updated, focusing on thyroid and mental health".

At the symposium, Center Director Dr. KAMIYA Kenji, as well as other physicians and researchers at the Center, presented the latest information on the results of the FHMS.

Also, with the participation of three internationally renowned experts from Australia and the United States, along with domestic experts in various fields, the symposium concluded successfully with lively discussion, addressing questions from the audience and introducing the latest research results.

The Center, while continuing to play a part in the revitalization and reconstruction of Fukushima through the practice of "watching over people's health," will strive to promulgate the results and lessons learned from the FHMS in a science-based, concise manner as much as possible as an entity involved the health and medical care.

◆ The CONFIDENCE (COping with uNcertainties For Improved modelling and DEcision making in Nuclear emergenCiEs) project, part of the H2020 research project CONCERT, ended in 2019. It brought together 31 organisations from 18 European countries to perform research on key uncertainties relevant for decision making in nuclear and radiological emergency management, covering the early and transition phase of an accident. Expertise from most of the Radiation Protection Platforms were combined to tackle pending topics such as the uncertainty of meteorological and radiological data and their further propagation in decision support systems including atmospheric dispersion, dose and risk estimation, food chain modelling and countermeasure simulations. Defining management strategies with stakeholders, investigations of formal decision aiding tools – all in relation to the prevailing uncertainties at the different phases of the accident was also part of the research activities. Consideration of social, ethical and communication aspects as well as education and training activities were integral part of the project.

The CONFIDENCE Dissemination workshop “Coping with uncertainties for improved modelling and decision making in nuclear emergencies” summarised the achievements of the project and highlighting the added value for the scientific community but also for the end users of simulation models and decision support systems in national emergency centres.

Results are published in the journal radioprotection and freely available under Open Access rules.

The editorial “Editorial: the main results of the European CONFIDENCE project” summarises the structure of the project and provides references to all CONFIDENCE articles in Radioprotection. ◆

Scientific Events

◆ May 2020 - NERIS Webinar on Chernobyl wildfires

On 28 May 2020, In April 2020, wildfires were reported in the exclusion zone around the damaged Chernobyl nuclear reactor. The fires reached the red forest, one of the most contaminated natural environments, and came as close as two km from the sarcophagi covering the damaged reactor. These are not the first wildfires after the 1986 accident and radiation scientists have recognized the potential to return radioactive material into the air, especially cesium-137 and strontium-90. This poses an obvious and immediate health risk to fire fighters, but smoke plumes may also transport this re-suspended radioactive material over long distances, resulting in redistribution of the historic fall-out from the accident. At the local and regional scale, people are concerned about the potential radiological impact too.

Several institutes have made assessments of the situation to answer these concerns, with a combination of satellite imagery and local observations of the fires' location and intensity, radionuclide detection and models of atmospheric dispersion and transport of particles. Methods developed for the management of earlier nuclear and radiological emergencies were used and new tools, like source inversion techniques, were tested. A number of institutes have issued general statements as well as detailed reports on the Chernobyl wildfires, available to the public on websites and social media.

In this webinar, we discussed the analyses carried out by different institutes, including their rationales, methods, results, communication to the general public as well as collaboration among them. First several speakers briefly presented the situation from their perspective. Then, in the second half, specific questions from the audience were addressed by the speakers and a moderated discussion followed.

A complete report and all the available materials can be found online.
(NERIS webinar: Chernobyl wildfires, May 2020)

Speakers:
Valery Kashparov – Ukrainian Institute for Agricultural Research, National University of Life and Environmental Sciences (UIAR) - Ukraine • Dmitry Bazyka – National Center for Radiation Medicine in Kiev, the WHO Collaborating Center for Radiation and Health - Ukraine • Wolfgang Raskob – Karlsruhe Institute of Technology (KIT) – Germany • Jasper Tomas – National Institute for Public Health and the Environment (RIVM) – The Netherlands • Olivier Saunier – Institute for Radiological Protection and Nuclear Safety (IRSN) – France • Astrid Liland – Norwegian Radiation and Nuclear safety Authority (DSA) – Norway • Johan Camps – Belgian Nuclear Research Centre (SCK CEN) - Belgium • Nick Beresford – UK Centre for Ecology & Hydrology –United Kingdom

Discussion Chair: *Lindis Skipperud* – NMBU/CERAD – Norway Chat
Moderators: *Yevgeniya Tomkiv and Deborah Oughton* – NMBU/CERAD – Norway
Webinar recording link: NERIS Webinar, video record

Photo: courtesy of D. Vishnevsky

News from the field

◆ Internal exposure of firefighters participating in response to Chernobyl forest fires.

By **Prof. Dimitry Bazyka,** National Research Center for Radiation Medicine, the WHO Collaborating Center for Radiation and Health, Kyiv Ukraine

A fire started in the Chernobyl exclusion zone on April 4, during COVID-19 lock-down in Ukraine. At the time many staff members of the National Resarch Center for Radiation Medicine (NRCRM) were already working remotely, nevertheless all relevant departments of the NRCRM were available to provide the necessary health care.
Several health risk factors were taken into account: psychological and physical pressure, high temperature, smoke, toxic compounds, radionuclide contamination and inhalation.

A two-tiered individual dosimetry for internal exposure was used: mobile/stationary Whole Body Counters (operational WBCs) as well as expert. From April 6th to May 15th 470 firefighters were examined and 523 WBC-measurements were conducted.

Operational WBC monitoring results:
The majority (95%) of internal 137 Cs exposure of the firefighters did not exceed the minimum detected dose (14 µSv).

Expert WBC monitoring results:
The individual effective dose of internal exposure of firefighters did not exceed - 5.1 µSv for group 1 (Kiev city); 3.5 µSv for group 2 (Cherkasy Region); 11.8 µSv for group 3 (Kiev region), which is much lower than the dose limit for the population according to the Ukrainian legislation.

Photo: RT

◆

Scientific Events

◆ENhancinG stAkeholder participation in the GovernancE of radiological risks for improved radiation protection and informed decision-making – ENGAGE

By **Catrinel Turcanu**, Nuclear Science and Technology Studies Unit, Institute Environment, Health and Safety, Belgian Nuclear Research Centre SCK•CEN

The **ENGAGE** project (https://www.engage-concert.eu/en) investigated the formal or informal demands and expectations for stakeholder engagement in radiation protection, and how these are translated into practices at national and local levels. It addressed three fields of exposure to ionising radiation, including nuclear emergency preparedness, response and recovery (EPR&R). The project sought to clarify why, when and how stakeholders engage in radiation protection; study how radiation protection culture is defined and developed, and whether it can facilitate stakeholder engagement; design a knowledge base for recording cases of stakeholder engagement; provide guidance and co-develop recommendations for more robust stakeholder engagement in radiation protection.

Related to EPR&R, ENGAGE highlighted that informal and bottom-up engagement can be valuable complements to institutional initiatives, but sometimes lack appreciation and support of authorities. In general, there is a need for wider recognition among emergency management actors that stakeholder engagement is more than a tool to reach pre-established goals: it also contributes to improved policies and decisions and has a strong ethical underpinning. Furthermore, emergency planning, response and recovery would benefit from i) a stronger integration of stakeholder engagement in EPR&R plans and policies, with a clear allocation of responsibilities, and ii) an open and flexible way of organizing engagement processes. Finally, ENGAGE highlighted the importance of developing radiological protection culture in the preparedness phase in a participatory way.

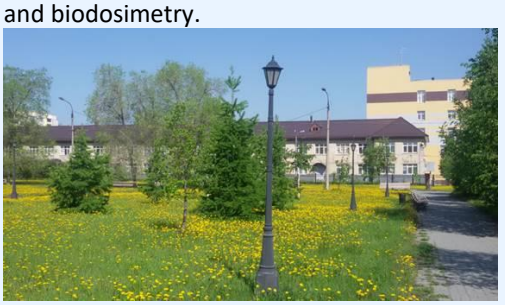
Photo: Participants at final ENGAGE workshop, Bratislava, Slovakia, September 11-13, 2019. Source: Tatiana Duranova, VUJE.

ENGAGE is part of CONCERT. This project has received funding from the EURATOM research and training programme 2014-2018 under grant agreement No 662287.

◆ The international conference *Biosphere compatibility of atomic energy* in Yekaterinburg, RF

By Alexander Akleyev, URCRM, Chelyabinsk, the Russian Federation

In March 2020, the Urals Research Center for Radiation Medicine (URCRM) jointly with the Institute of Industrial Ecology hosted the international conference "Biosphere compatibility of atomic energy" in Yekaterinburg, Russia. The event provided an opportunity for presenting the findings of the Center's research projects in fundamental and applied research in the field of radiobiology and biodosimetry.



A series of outstanding reports were presented by the URCRM specialists and discussed at this scientific forum as follows:

- Challenging issues of present-day radiobiology (A. Akleyev),
- Modern dosimetry systems in radiation epidemiology (M. Degteva)
- EPR-dosimetry for reconstructing the details of human exposure in uncontrolled radiation situations (E. Shishkina),
- Study of layer-by-layer changes in the lens in chronically exposed people (L. Mikryukova),
- Biology of telomeres and radiation (Ya. Krivoshchapova),
- Non-targeted effects in radiobiology (Yu. Akhmadullina).

The Center is open for international cooperation in the areas mentioned above. Please contact our secretariat, should further information be needed. ◆

Education, Training, Exercise

◆ Lund 2019 - RENEB and EURADOS WG10 intercomparison exercise.

On behalf of the joint RENEB and EURADOS WG10 intercomparison task group – by Prof. Matthias Port, Institute for Radiation Biology, Munich, Germany

Radiological emergencies require early and precise diagnosis of exposed individuals usually in the absence of an adequate individual dose assessment. Biological and physical retrospective dosimetry offer several techniques for dose estimation and for retrospective evaluation of radiation injuries to initiate appropriate treatment and support clinical guidance. In 2019 an exercise was performed jointly under the leadership of RENEB (Running the European Network of Biodosimetry) and EURADOS WG 10: Retrospective Dosimetry. Following a similar field test conducted a few years ago within the European CATO project, a "real life" scenario of a small scale radiation accident was simulated, including 4 phantoms each exposed in a different way, in order to test the ability of biological and physical methods to assess the exposure type and dose. The main aim of the exercise was to apply biological and physical methods for dose estimation simultaneously and to compare the results. In this innovative and challenging exercise we used protracted exposure to an Iridium-192 source on blood samples at varying distances from the source (see photo of phantoms set up). Blinded retrospective dosimetric measurements based on human blood samples were done by dicentrics assay in parallel with a gene expression analysis of candidate genes using qRT-PCR technology by several laboratories within the RENEB and EURADOS WG 10 network. Physical dosimetric analysis was performed by a large number of laboratories from EURADOS WG 10. Exact dosimetric evaluation as well as individual analysis of the laboratory results are currently being processed and scientific publications are under preparation. Expected to be published in 2020/2021 are new and significant findings for radiation emergency preparedness. We want to thank the organizers as well as all participants of the exercise and look forward to the upcoming scientific discussion. ◆

Education, Training, Exercise

◆ WHO on-line training courses:

- ✓ **Open WHO**

WHO Academy :

- ✓ **WHO Academy News**
- ✓ **WHO Academy Home**

◆ US CDC on-line training courses:

Radiation Emergency Training and Education (HHS/CDC)

- **Basic radiation principles**
  - ✓ **Radiological Contamination and Exposure**
  - ✓ **Types of Radiation**
  - ✓ **Radiation Basics Made Simple, including:**
    - ❖ Sources of Radiation
    - ❖ Radioactive Decay
    - ❖ Measuring Radiation
    - ❖ Biological Effects of Radiation
    - ❖ Radiation Protection
    - ❖ Decontamination
    - ❖ Environmental Impact of Radioactivity
    - ❖ Responding to Radiation Emergencies
- **Radiation detectors, screening of external contamination**

✓ How to Use Hand-held Radiation Survey Equipment (Part 1)

✓ Ionization Chambers (Part 2)

✓ Alpha Scintillation Detectors (Part 3)

✓ Public Health Response to Radiological and Nuclear Threats

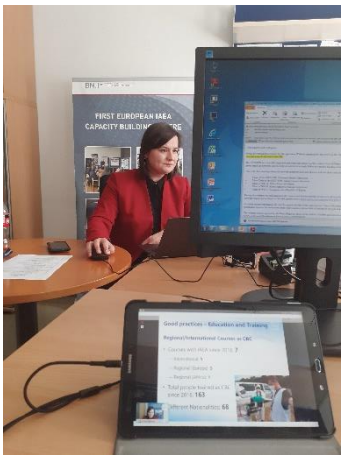
✓ Radiological Terrorism: Just in Time Training for Hospital Clinicians ◆

Education, Training, Exercise

◆ Training activities of the Civil Protection School of Austria´s Federal Ministry of the Interior

By **Almira Geosev**, Austria´s Federal Ministry of Interior, Civil Protection School

The Civil Protection School of Austria´s Federal Ministry of the Interior had to postpone most of its training activities planned for the first half of the year due to COVID-19. However, in February and March, several trainings for special forces of the Austrian Police were held with a special focus on Personal Protective Equipment (PPE). Many of the trainees, all radiation protection specialists, were part of so-called competence teams to respond to deployments with COVID-19 cases or suspected cases involved. We also provided our CBRN expertise when questions about decontamination came up. Furthermore, two members of our unit supported the national crisis and disaster response staff established at the Ministry of Interior.



The COVID-19 pandemic did not stop activities for the IAEA "international Network for Education and Training" (iNET-EPR), where Austria currently holds the Network Vice Chair (Mrs. Almira Geosev, *in photo*). Several online meetings of the working groups took place, including the IAEA webinar on June 2nd with more than 200 participants. At this occasion, Almira presented our activities as an IAEA Capacity Building Centre in Emergency Preparedness and Response (CBC-EPR) from 2016 to date. Last, but not least the Web Portal of iNET-EPR has been launched.

Check it out: **IAEA - iNet-EPR**

Photo: participants of the training at the Civil Protection School of Austria´s Federal Ministry of the Interior (by. A. Geosev)

◆ WHO EURO Workshop on Rapid Risk Assessment of Acute Public Health Events (by Zhanat CARR, WHO, Geneva)

On 20-24 July 2020, WHO Country Office in Ankara, Turkey, organized a national workshop on Rapid Risk Assessment of Acute Public Health Events for health care professionals of Turkey, who are involved in planning and managing health emergencies and mitigation of their consequences. The training programme included a full day dedicated to each of the biological, chemical, radio-nuclear hazards, as well as natural disasters. WHO Radiation Programme provided technical support for the WS and organized a table-top exercise involving a nuclear emergency scenario. ◆

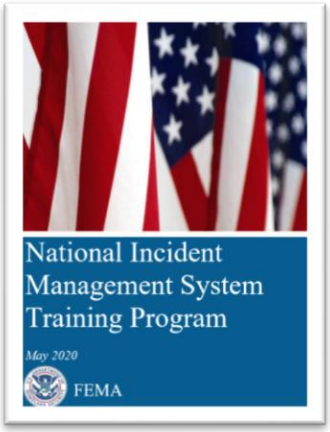
Coming, Going

◆ Since July 2019, **Dr. Maria Angelica Wasserman** became director of Institute of Radiation Protection and Dosimetry (IRD), at the National Nuclear Energy Commission (CNEN), Rio de Janeiro, Brazil. Angélica has spent the past 24 years as a researcher, contributing in the field of the tropical radioecology.
IRD is one of the WHO Liaison Institutes in South America.
The institute is also the National Warning Point under the IAEA's Convention on Early Notification of a Nuclear Accident. ◆

◆ **Lesley Prosser** left her job at the Public Health England in June 2020.
Lesley joined the UK National Radiological Protection Board (NRPB) in 1988. The majority of Lesley's career was focussed on Radiation Emergency Preparedness and Response, eventually becoming the Head of the Radiation Hazards and Emergencies Department in PHE.
We express our enormous gratitude for Lesley's contributions to strengthen emergency arrangements in the UK and internationally, especially under collaboration related to PHE Centre for Radiation, Chemical and Environmental Hazards being a WHO collaborating centre and a long-standing member of REMPAN. ◆

Education, Training, Exercise

◆ NIMS TRAINING PROGRAM 2020



Each day across the nation, communities experience incidents and disasters that require an effective response from local agencies working across jurisdictions and using similar processes and systems. FEMA's National Incident Management System (NIMS) provides principles, structures, and processes that link the nation's responders together, enabling them to meet challenges that are beyond the capacity of any single jurisdiction or organization. The effectiveness of NIMS hinges on how well incident personnel at all levels understand their roles and responsibilities. Training is critical to building a common understanding and ensuring that responders apply NIMS concepts across state, local, tribal, and territorial jurisdictions and partners. NIMS training is one piece of a comprehensive incident management program involving a continuous cycle of planning, organizing, equipping, exercising, evaluating, and taking corrective actions. In 2017, FEMA revised NIMS to incorporate lessons learned, best practices, and changes in national policy, including updates to the National Preparedness System.1 This NIMS Training Program incorporates the revised NIMS content and clarifies recommended training for incident personnel. This training program supersedes all prior versions of NIMS training and the Five-Year NIMS Training Plan.

NIMS Training Program 2020

◆ IAEA's webinars series 2020

are focusing on various aspects of emergency preparedness and response, including for example:

- "Combined Emergencies" (2020/05/28)
- "Protection Strategy" (2020/06/10)
- "NPP Emergency Case Study: Three Mile Island NPP Emergency in light of new EPR guidance" (2020/06/24)
- "Medical Physicists: Preparedness and response for nuclear and radiological emergencies" (2020/07/09)
- "Developing EPR Arrangements – the 10-Step Approach" (2020/07/29)

Webinar and related materials are available on IAEA's e-learning platform for registered users with NUCLEUS account: https://websso.iaea.org/

Image credit: IAEA webinar repository website

Coming, Going

Dr. Adilson Bernardo has been selected as Director of Electro-nuclear Medical Assistance Foundation (FEAM). Dr. Adilson Bernardo is a physician with large experience in radiation emergency preparedness and response. Has worked as a member of the radiation emergency medical team of Almirante Alvaro Alberto Nuclear Central Station (CNAAA), Angra dos Reis, Brazil, from 1978 to 1998. From 2001 to 2003 was the coordinator of all the medical response in case of nuclear accidents at CNAAA. During this time, actively participated in several drills of the Local Emergency Plan. ◆

◆ Public Health England Centre for Radiation, Chemical and Environmental Hazards (PHE CRCE), UK

Dr Connaugh Fallon is a Senior Radiation Protection Scientist and On-call Officer in the Emergency Response Group at PHE's Centre for Radiation, Chemical and Environmental Hazards. This role includes the coordination and support of PHE's emergency response capabilities. Connaugh has a research background in nuclear forensics and environmental radiochemistry, with a PhD from the University of Manchester. Prior to joining PHE in January 2020, Connaugh was a visiting researcher at the University of Helsinki ◆

News from Network Members

◆ Updates from the Swiss Federal Office for Public Health (S FOPH)

On 21 February 2020, SFOPH held a national meeting of medical specialists in Bern, Switzerland. Meeting participants discussed the arrangements for clinical management of patients over-exposed to ionizing radiation, treatment modalities, resources allocation, capacity building, specialist training and education possibilities, and resources allocations. The meeting was attended by a representative of the WHO Secretariat Dr. Z. Carr.

◆ Establishment of "The Great East Japan Earthquake and Nuclear Disaster Memorial Museum" in Fukushima

By Noboru Takamura (Nagasaki University)

This autumn, "The Great East Japan Earthquake and Nuclear Disaster Memorial Museum" is going to open in Futaba Town, Fukushima Prefecture, Japan. Futaba Town is located in the coastal area of Fukushima, where the Tokyo Electric Power Company Fukushima Dai-ichi Nuclear Power Station was established. Since April 1, 2020, Prof. Noboru leads as the first director of this museum while remaining as a professor at Nagasaki University and working for REMPAN.

The purpose of this museum is to preserve and disseminate the information related to the Fukushima nuclear disaster and the recovery process for the future, and then share these data worldwide.

This museum also has the important mission to function as an "information transmission base" of the Fukushima International Research and Industry.

Development Project (Innovation Coast Project), which aims to revitalize the Hamadori region (coast region) of Fukushima through the development of innovative industry and research activities related to the recovery of this area. Due to this mission, the museum collects and preserves the archives that are related to earthquake, tsunami, and nuclear disasters and will implement training programs such as field works and workshops.

Due to the COVID-19 pandemic, the opening of the museum has been postponed from summer to autumn of this year. We look forward to seeing you there soon!

◆ Updates from REAC/TS – Oak Ridge, TN, USA

by **Dr. Adayabalam Balajee** (director of cytogenetic biodosimetry lab)

Dr A. Balajee attended the annual meeting of EURADOS (The European Radiation Dosimetry Group) in Florence, Italy from 27-30 January.

The meeting was attended by 347 participants from Europe, Asia, and the United States. The meeting consisted of 8 working groups in parallel sessions (Harmonization of Individual Monitoring, Environmental Dosimetry, Computational Dosimetry, Internal Dosimetry, Dosimetry in Radiotherapy, Retrospective Dosimetry, High-Energy Radiation Fields, and Dosimetry in Medical Imaging).

Dr. Balajee presented the opening lecture on "Cytogenetic follow-up studies on humans with various exposure scenarios to ionizing radiation" at the Retrospective Dosimetry session.

The conference, comprised of eminent scientists from across the globe, focused on the latest developments in the field of physical and biological dosimetry.

Participation in the EURADOS meeting was useful for gaining information and knowledge on the current state of dosimetry techniques and for enhancing the biodosimetry capabilities of the REAC/TS CBL.

Furthermore, participation in the EURADOS meeting provided opportunities for the REAC/TS CBL to promote interaction and networking capabilities with other biodosimetry laboratories worldwide.

As has been learned during the COVID-19 response, the availability of laboratory testing is paramount. The linking of biodosimetry laboratories worldwide would help mitigate similar issues that could arise in a R/N event

◆

Taking REMPAN pulse during COVID-19 lockdown

In April 2020 we asked the network members to answer three short questions about their institution's involvement in pandemic response. In addition, we asked to share personal stories of coping with the challenges of confinement, keeping productive, maintaining physical activity and wellbeing.
Below are some of the stories we received (apologies for not including all for the lack of space!)

◆ CCMMRE in action during COVID19 pandemic

By **Lei Cuiping**, China CDC

As part of China CDC, some staffs in National Institute for Radiological Protection & Chinese Center for Medical Response to Radiation Emergency also were sent to participate in the war with COVID-19. Four colleagues were deployed to Wuhan city to participate in the epidemiological investigation of patients and close contacts for more than two months.
In cooperation with Hubei CDC and hospitals in Wuhan, CCMRRE initiated a study on the surface contamination during the X ray radiographic examination of novel coronavirus pneumonia, which provided scientific data for the protection of imaging technicians in hospitals designated to manage novel coronavirus pneumonia patients.

CCMRRE organized experts compiling infection control and radiation protection management during the radiation examination of novel coronavirus pneumonia, Q & A for Novel coronavirus pneumonia prevention and control and personal dose monitoring.
Today they all have returned safely and are involved in the prevention and control of the epidemic in Beijing. Eight CCMMRE staff members joined the outbreak response group at the National Health Commission and China CDC.

Photo: water salute when returning from Wuhan on April 20th, 2020

COVID-19: personal stories

◆ **Dr. YUAN LONG** had long planned to travel to Italy with his family after the Spring Festival in China. Unforeseen to them, at the start of the 2020 outbreak, both himself and his wife were asked by the National Health Commission and China CDC in mid-January to provide their assistance. Dedicated professionals, they without hesitation cancelled all their bookings to be able to support the national response to COVID19 outbreak. His 8-year-old daughter at first felt very sad about her lost Italian vacation until, shortly after, the first outbreak occurred in Italy, in February. While praying for Italy, his daughter felt that vacation could wait until luckier times, while feeling relieved to have stayed safely home.

Photo: Four of our colleagues after being released from quarantine on their return from Wuhan

◆ **Marcus Grzechnik (ARPANSA)** had been using his free time in a very creative way... In his own words:

The COVID-19 pandemic has affected the world, and Australia is no exception. Because of our geographical isolation and a timely, well organised and implemented national pandemic response throughout all states and territories, cases of the virus and fatalities have, thankfully, been limited. Part of the response has included spending a lot more time at home, working for myself and remote learning for school-age children such as my own. We have been making the most of the time together by going for daily local walks, having kid's pyjama days, and enjoy some time together by creating coloured hair and beard-styles!

Taking REMPAN pulse during COVID-19 lockdown

◆ Burnasyan FMBC/FMBA of Russia response to COVID-19 – by A. Bushmanov (06 May 2020)

During April-June 2020 an infectious disease hospital with 80 beds was set up at the Moscow WHO CC clinic and more than 330 patients with coronavirus infection were treated. For the purpose of PPE reuse by the personnel working with coronavirus patients, irradiation method was developed and implemented at the Center. Based on virologic and other monitoring, an electron irradiation dose of 25,000 Gy was selected, which completely destroys the coronavirus in a liquid and solid environment. At the same time, the protective properties of PPE remained intact. More than 2000 PPE suits were returned for work to the staff of the coronavirus infectious diseases hospital of the Moscow WHO CC. We believe that this radiation technology can be used in an emergency situation with insufficient personal protective equipment.

◆ ARPANSA response to COVID19 - By R. Tinker (

ARPANSA has provided support in a number of capacities we have provided risk communication information on the misinformation surround the effect of 5G has on the immune system/ COVID-19 (link) and the use of UVC lamps to disinfect surfaces and the potential risk of skin cancer if skin is exposed to UVC (link).

ARPASNA is also currently working a on improving clinical management by generating a diagnostic reference level (DRL) from high definition (HD) CT scans (which are also used for CoVID-19 screening and workup/staging) from data we have collected as part of general data collection. Further, ARPANSA is supporting the Australian Government Department of Health by providing expert support and helping to maintain a response capacity.

◆ REAC/TS and COVID-19 - By C. Iddins

During the COVID-19 pandemic, the Radiation Emergency Assistance Center/Training Site (REAC/TS) has maintained their deployment readiness while working remotely. While in-person courses have been postponed, new ways to share information on the medical management of radiological illnesses and injuries have been employed. REAC/TS will have a new website design launch in June 2020, with new material and greater ease of navigation. Additionally, lessons learned from the COVID-19 response have provided comparison points to issues that would be seen in a radiological or nuclear incident response. REAC/TS Director Dr. Carol Iddins has been the invited speaker on two recent webinars that have addressed these topics: the University of Tennessee Graduate School of Medicine's Medical Grand Rounds Webinar hosted by UT Medical Center, Knoxville in April and the American Academy of Clinical Toxicology's (AACT) Webinar held in May.

Photo: REAC/TS Team virtual meeting ◆

◆ Mental Health First Aid at PHE

By Liz Ainsbury, Public Health England Centre for Radiation, Chemical and Environmental Hazards (PHE CRCE).

Mental health first aiders, MHFA, are staff volunteers who support colleagues with their mental wellbeing. They listen to concerns and share further support options that are available internally or local external support services such as Samaritans. Like physical first aiders, this is a voluntary role that falls under the PHE volunteering policy. It is not a mandatory capacity for employers by law, but reflects the fact that many employers now recognise that mental wellbeing is equally as important, if not more important, as physical wellbeing.

The training was developed in partnership with MHFA England. More information: https://www.mind.org.uk/news-campaigns/news/one-million-people-to-receive-mental-health-first-aid-training/ ◆

◆ Update from USA – a personal perspective - by R.Whitcomb (20 April, 2020)

Our institution is leading the COVID-19 response in the USA. In regard to our Radiation Studies Section, we have been assisting in the COVID-19 response by staffing EOC, deploying to CDC quarantine stations, supporting the Environmental Health Task Force within CDC's Incident Management System structure, and assisting the CDC's Joint Information Center.

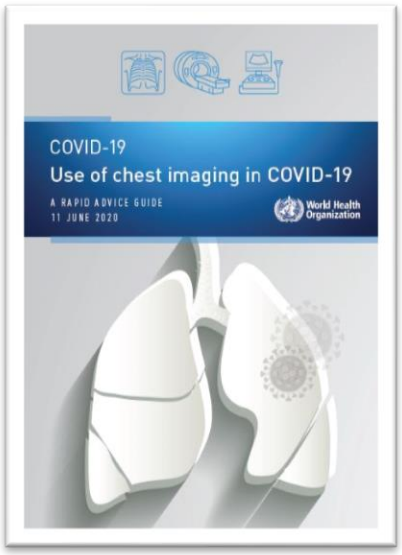
Staff has been working from home and keeping in step with recommended public health actions.

The bright side of this situation included many opportunities to improve cooking skills: trying out some new and old recipes at home either in the kitchen or outside on the grill! Hard to believe what has unfolded and I do hope we can get through this with a renewed perspective on what is truly important in life.

◆

New Publications

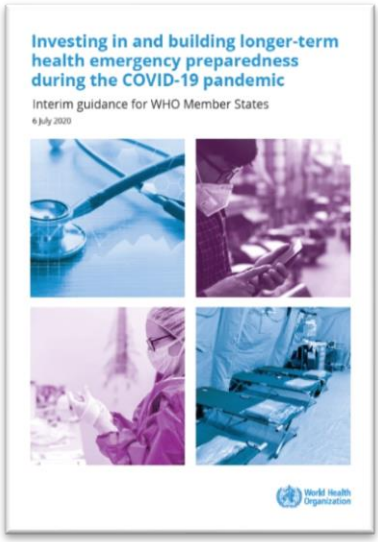
◆ USE OF CHEST IMAGING IN COVID-19 (WHO, 2020)



Chest imaging has been considered as part of the diagnostic workup of patients with suspected or probable COVID-19 disease as well as possibly complementing clinical evaluation and laboratory parameters in the management of patients already diagnosed with COVID-19. This motivated the development of global guidance support Member States in their response to the 2019/2020 pandemic. This rapid advice guide examines the evidence and makes recommendations for the use of chest imaging in acute care of adult patients with suspected, probable or confirmed COVID-19, including chest radiography, computed tomography (CT) and lung ultrasound. This rapid advice guide was developed in accordance with the WHO handbook for guideline development, supported by a core group, a WHO steering group, a guideline development group and an external review group of international experts. Scoping thematic discussions determined the focus areas and the key questions to be addressed. The relevant evidence was systematically reviewed, and the quality of the evidence for key outcomes was assessed using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach.

Download: **Use of chest imaging in COVID-19: a rapid advice guide.**

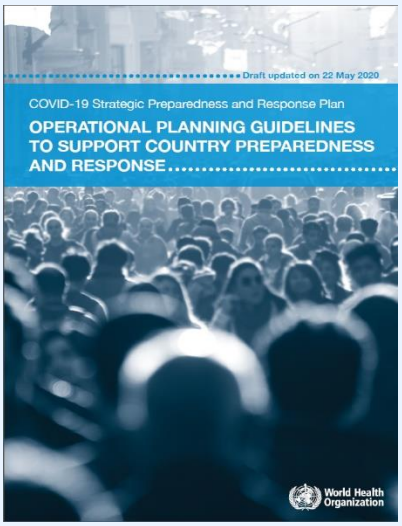
◆ Interim guide on longer-term health emergency preparedness (WHO, 2020)



This document has been developed to help Member States build on actions taken during the COVID-19 pandemic to improve national medium- to long-term preparedness for future threats. It maps COVID-19 preparedness and response actions to the building of sustainable International Health Regulations (2005) core capacities; locates relevant supporting WHO resources that are not specific to the pandemic; and advocates for the conscious and effective allocation of COVID-19 funds to also meet countries' longer-term needs.

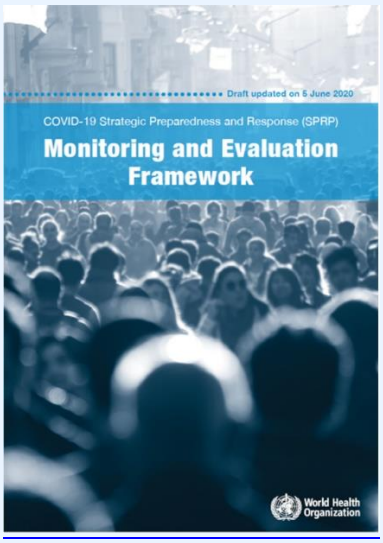
Download link ◆

All WHO COVID19-related reports, guides and communication materials



WHO Operational planning guidelines

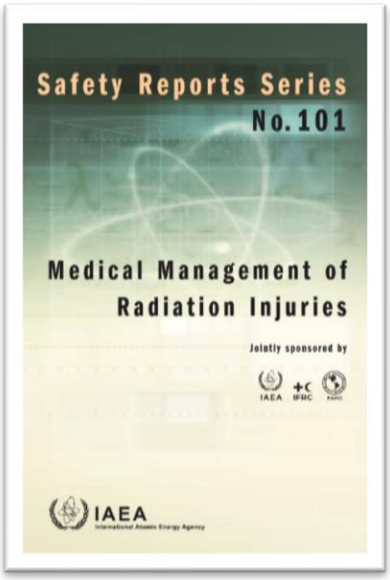
WHO Hospital Readiness Checklist 2020



WHO Monitoring and Evaluation Framework

New Publications

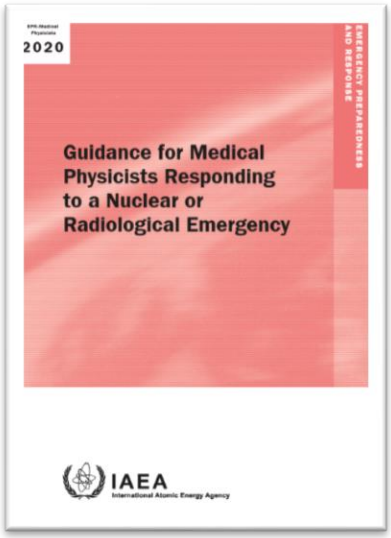
◆ Medical management of radiation injuries (IAEA, 2020)



In the past two decades, developments in scientific research and diagnostic methods, and new medical techniques and new applications in dose assessment and treatment have significantly changed the means and methods of treating radiation injuries, and new scientific knowledge has been acquired from clinical and preclinical experience. The medical management of individuals (patients) involved in nuclear and radiological emergencies has progressed considerably, and the new medical approaches have incorporated lessons from experience gained from accidents occurring in such diverse settings as industry; medicine; and source control, replacement and disposal. This Safety Report on the medical management of radiation injuries includes new information on medical preparedness and response to nuclear or radiological emergencies. It is set within the overall framework outlined in IAEA Safety Standards Series No. GSR Part 7, Preparedness and Response for a Nuclear or Radiological Emergency, which, in Requirement 12, addresses the management of the medical response in a nuclear or radiological emergency. This publication supersedes Safety Reports Series No. 2.

Download the IAEA - Safety Report on Medical Management of radiation injuries 2020

◆ EPR- Guidance for Medical Physicists – IAEA, 2020



Medical physicists in medical radiation services (e.g. radiology, radiotherapy, nuclear medicine) are part of the clinical team and have a special responsibility for safe use of ionizing radiation. Using these radiation protection specialists in emergency and preparedness teams is a good medical practice. With the knowledge of radiation dosimetry, dose reconstruction and dose measurement procedures, they constitute a unique group of professionals who, with the appropriate training, can provide effective support for emergency preparedness and response activities.

EPR- Guidance for Medical Physicists – IAEA, 2020

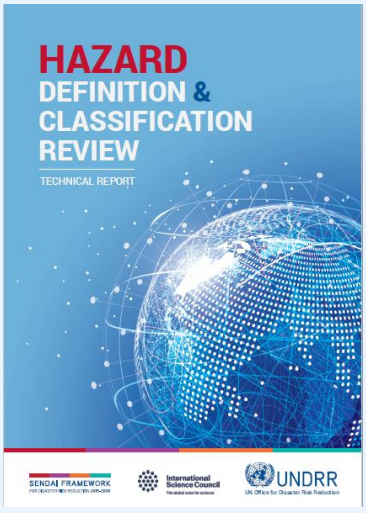
Download **Pocket Guide for Medical Physicists 2020** ◆

◆ International Science Council: Hazard Definition & Classification Review: Technical Review (2020)

The Sendai Framework for Disaster Risk Reduction 2015–2030 ('the Sendai Framework') was one of three landmark agreements adopted by the United Nations in 2015. The other two being the Sustainable Development Goals of Agenda 2030 and the Paris Agreement on Climate Change.

The UNDRR-ISC Sendai Hazard Definition and Classification Review Technical Report supports all three by providing a common set of hazard definitions for monitoring and reviewing implementation which calls for "a data revolution, rigorous accountability mechanisms and renewed global partnerships".

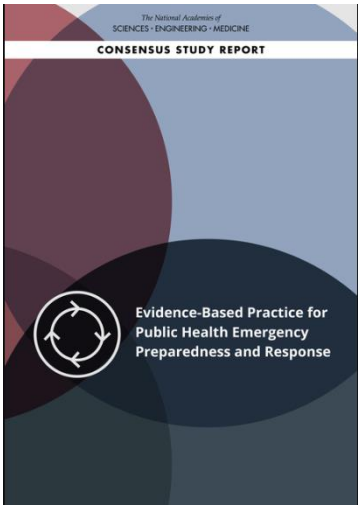
The report was officially launched online on 29 July 2020. The Special Representative of the Secretary-General for Disaster Risk Reduction and Head of the UNRRR, Mami Mizutori, opened the discussion, saying the report was a timely milestone in the actions that have been taken over the last five years to accelerate implementation of the Sendai Framework for Disaster Risk Reduction.



Download full report ◆

New Publications

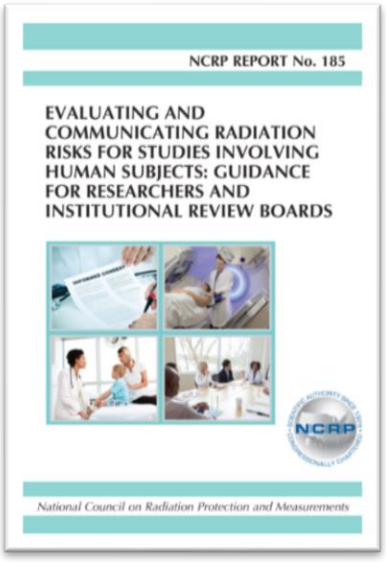
◆ National Academies of Sciences - Evidence-Based Practice for Public Health Emergency Preparedness and Response



When communities face complex public health emergencies, state local, tribal, and territorial public health agencies must make difficult decisions regarding how to effectively respond. The public health emergency preparedness and response (PHEPR) system, with its multifaceted mission to prevent, protect against, quickly respond to, and recover from public health emergencies, is inherently complex and encompasses policies, organizations, and programs. Since the events of September 11, 2001, the United States has invested billions of dollars and immeasurable amounts of human capital to develop and enhance public health emergency preparedness and infrastructure to respond to a wide range of public health threats, including infectious diseases, natural disasters, and chemical, biological, radiological, and nuclear events. Despite the investments in research and the growing body of empirical literature on a range of preparedness and response capabilities and functions, there has been no national-level, comprehensive review and grading of evidence for public health emergency preparedness and response practices comparable to those utilized in medicine and other public health fields.
https://www.nap.edu/catalog/25650/evidence-based-practice-for-public-health-emergency-preparedness-and-response

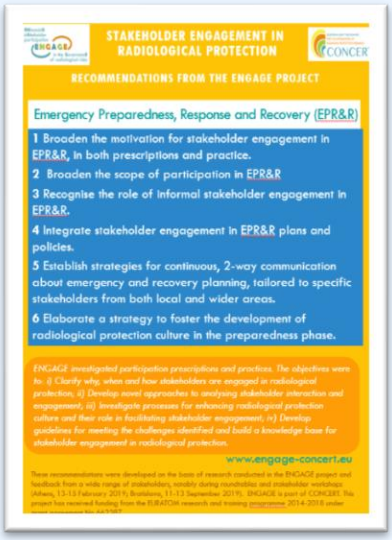
◆ NCRP REPORT on Evaluating and Communicating Radiation Risks

The extent of knowledge about ionizing radiation in general, radiation involved in medical procedures, and the potential adverse effects of radiation varies substantially among members of the public and within the medical community. Also, although many U.S. academic institutions provide guidelines for the conduct of human research, including research involving radiation, these guidelines lack uniformity. There is a need to provide comprehensive, consistent and accurate guidance on radiation risks of research protocols that involve the use of ionizing radiation to those who develop protocols and conduct research involving human subjects and to institutional review boards (IRBs) that review these protocols.



NCRP Report: guidance for researchers and institutional review boards 2020

◆ Final Report ENGAGE Project



◆ EU Publication Euratom Basic Safety Standards Directive

◆ French language translations of the WHO Guideline on Iodine Thyroid Blocking in Case of a Nuclear Emergency is now available. It was translated with the kind support of IRSN - a WHO Collaborating Center in Paris, France.

Download PDF copies in English, Chinese, Spanish, Russian, Portuguese, and Japanese here

Upcoming Events

◆International Conference on Radiation Safety 2020: *Improving Radiation Protection in Practice*

Time: November 9th to 13th, 2020
Place: Vienna, Austria
Organized by: IAEA
https://conferences.iaea.org/event/213/ ◆

◆ ICRP International Conference on Recovery after Nuclear Accidents: *Radiological Protection Lessons from Fukushima and Beyond*
Time: 29 November to 4 December 2020
Place: Iwaki City, Fukushima, Japan
Organised by: ICRP. Hosted by: JAEA
Link: International Conference on Recovery after Nuclear Accidents ◆

◆ RERF Short-term training on radiation epidemiology and molecular biology for junior researchers
Dates: November 10-20, 2020
Place: Hiroshima, Japan
More information: rempan@rerf.or.jp

◆ The 24th Nuclear Medical Defence Conference, ConRad-2021 will be held in Munich on 10-13 May, 2021. As a continuation of the successful row of biennial conferences, this conference on radiation topics will provide a scientific forum for international and multidisciplinary exchange of civilian and military experts in the field of radiation science with a particular focus on radiation emergency medical preparedness. More details will be found within the next month at: www.radiation-medicine.de

RESCHEDULED:
◆ IRPA-15 Congress and WHO/REMPAN-16 meeting are postponed to 11-15 Jan 2021 – Seoul, Republic of Korea

https://www.irpa2020.org/

◆ EPR BioDose 2020 Conference - Okayama University of Science, Japan, is postponed to 2021.
http://iaberd.org/EPRBioDose2020/index.html

◆ 5th European Radiation Protection Week – ERPW - Portugal
Postponed to 2021
https://erpw2020-portugal.eu/ ◆

Disclosure

The REMPAN e-NEWSLETTER is produced 2 times a year and circulated by WHO Secretariat to the network members to provide information about latest news on the network's activities, developments in radiation emergency preparedness and management.

The REMPAN e-NEWSLETTER was prepared jointly by the WHO Collaborating Center in Wuerzburg University Hospital, Germany, and WHO REMPAN Secretariat, WHO, Geneva, Switzerland.

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Past REMPAN e-NEWSLETTERs download link (new!)

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