



# REMPAN eNEWSLETTER

ISSUE N 26

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**SPECIAL REPORT**

WHO REMPAN Secretariat reports on the actions and activities in support of the WHO response to the crisis in Ukraine and other relevant activities - pp. 2-3. The news from Ukraine are on p.4.

EVENTS

**NETWORK NEWS**

Network members and partners report on their activities pertaining to the field of radiation emergencies preparedness and response, capacity building, research, and advocacy activities - pp 4-14

INFORMATION

**UPCOMING EVENTS**

The events which cannot be missed are highlighted on pp. 16-17. We encourage the network members to inform REMPAN secretariat regularly about their events and new publications pertaining to EPR.



Priorities for health system recovery in Ukraine - joint discussion paper  
 28 Dec 2022  
 To read [click here](#)

## From the desk of REMPAN Coordinator:

Dear Reader,

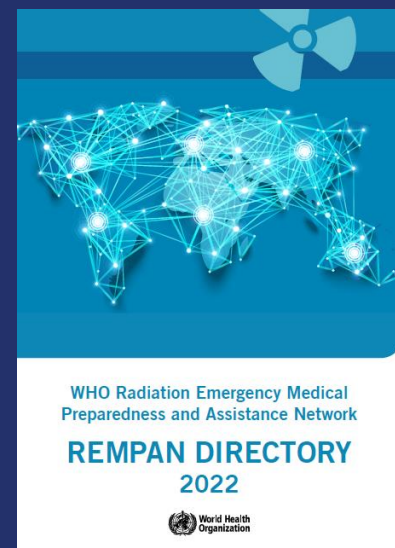
First of all, let me wish you and your loved ones a wonderful new year! May it bring much needed PEACE with the absolute prerogative of HEALTH and much welcomed PROSPERITY in all your endeavours.

The past year has challenged us on many levels by testing and putting under enormous stress our abilities to cope, to serve, to deliver for those in need. No words are enough to thank you – the REMPAN community – for your generous support of our work.

In 2023, we are planning a few new projects that will help to further strengthen the health sector's preparedness to radiological and nuclear emergencies globally. We are looking forward to continuing our cooperation!

Thank you for being REMPAN!

Dr Zhanat Carr



### ◆ REMPAN Secretariat's report for the Jul-Dec 2022 period

The WHO Radiation and Health Unit has been providing support to Ukraine on health systems preparedness to health emergencies related to technological hazards (radiation and chemical emergencies). This included providing technical assistance to the Ministry of Health (MoH) of Ukraine as well as to the WHO Regional Office for Europe and WHO Country Office in Ukraine.

- In response to the request of the MoH, a **mission to Ukraine** was carried out in September 2022 with the purpose of reviewing health sector's capacities and providing recommendations on strengthening preparedness to radiation emergencies. Recommendations were provided to the MoH via WHO's Country Office.
- **Public communication materials** (infographics, Q&As, etc.) as well as information and technical tools for specialists involved in planning the response to radiological and nuclear emergencies were developed and uploaded on a [dedicated website](#).
- A face-to-face **training for first responders** was held in Kyiv in June 2022; in addition, a series of educational **webinars** were launched jointly with the WHO Collaborating Centre in Kyiv. The first webinar on clinical management of acute radiation syndrome (in Ukrainian language) was delivered in May, the second webinar on [triage, decontamination and pre-hospital response](#) was held in July and the third webinar on mental health and psychosocial support in nuclear emergencies was held in November 2022.
- Updates on **WHO's response to the war in Ukraine** are provided regularly at: <https://www.who.int/emergencies/situations/ukraine-emergency>
- The latest updates on the situation in the Ukraine are available on the **IAEA website**: [Nuclear Safety and Security in Ukraine | IAEA](#)
- **Proceedings of the 16th REMPAN** coordination meeting held in 2021 were finalized and published as a [Special Issue of the Open-Access journal Environmental Advances](#) (Elsevier)
- Following the 2020 publication of the **WHO Framework for Mental Health and Psychosocial Support (MHPSS) in Radiological and Nuclear Emergencies**, WHO continues disseminating the Framework and advocating for the importance of integrating measures for mental health and psychosocial support (MHPSS) in preparedness and response to radiation emergencies. WHO is contributing to the work of NEA CRPPH's Expert Group on Non-Radiological consequences of nuclear accidents (EGNR) to implement the MHPSS Framework through development of practical solutions to support decision makers to incorporate MHPSS in the emergency plans and procedures. WHO [on-line training course on MHPSS in health emergencies](#) went live in April 2022 on the OpenWHO platform and includes a special module on MHPSS in radiation emergencies.





Other activities implemented in the reporting period in the EPR area included:

- The joint WHO – UN CCT training course: Radiological and Nuclear Hazards - Preparedness and Response to Accidental and Terrorist Events and Emergencies held in Ankara, Türkiye with participation of national health and other competent authorities – in July 2022 (more information further down in this newsletter);
- The on-line meeting of the Global Health Security Initiative WG on radiation emergencies (G7 states plus Mexico) – in October 2022;
- The 25<sup>th</sup> meeting of the HERCA WGE that took place in hybrid mode in Ljubljana, Slovenia in October 2022;
- The NEA/OECD WPNEM meeting and a workshop on the Recovery after Nuclear Emergencies – in October 2022;
- The European Radiation Protection Week 2022 that took place in Estoril/Portugal in October 2022 (see photo below) and featured a round table with IAEA, ICRP, and IRPA representatives and discussed the situation in Ukraine.



- The meeting of the ICRP Task Group 120: Radiological Protection for Radiation Emergencies and Malicious Events held in Vancouver/Canada – in November 2022;
- The Joint External Evaluation missions to Thailand in Nov 2022 and to Nepal in December 2022.

In addition, as an observer organization to IAEA's safety standards committees (RASSC and EPRReSC), to UNSCEAR, OECD/NEA CRPPH, and EURATOM Article 31, WHO attended and contributed to relevant meetings held in the reported period. WHO cooperated with the IAEA and ILO in the organization of the International Conference on Occupational Radiation Protection that was held in Geneva in September 2022 and participated through several presentations.

In October 2022, WHO co-sponsored two IRPA regional congresses: the [AFRIPA-06 held in Accra, Ghana](#) and the [X Congreso Regional de Seguridad Radiologica y Nuclear IRPA](#) in Santiago, Chile.

### ◆ WHO policy advice on developing national stockpiles for radiation emergencies

The 2007 WHO held a consultation and published report on setting up national stockpiles for radiation emergencies.

In 2021, the Secretariat reconvened the Working Group to update the 2007 report. Thanks to the support of REMPAN members, who peer-reviewed the draft and provided invaluable feedback, the new document was brought to the completion in December 2022. Undergoing last touches and internal clearances, it is foreseen to be launched in January 2023.

In addition, a hospital preparedness checklist and a list of technical specifications for radiation detecting and measuring devices for emergency monitoring are being developed by REMPAN experts.



## News from Ukraine

### ◆ NRCRM - FROM COVID TO WAR

By *Anatolii Chumak,*

*Director of the Institute of Clinical Radiology of NRCRM*

On February 24, 2022, just as COVID-19 epidemics was calming down, the war began in Ukraine. The National Research Center for Radiation Medicine (NRCRM) – WHO Collaborating center for radiation emergency medicine and research, as well as for the rest of Ukraine's establishments, hospitals, schools, industry, etc., has been suffering from missile strikes on strategic locations in Kyiv and other locations. The war is causing grave consequences for all people in Ukraine, and especially for hospitals and health care facilities, where seriously ill patients who cannot be discharged should be continuing receiving care, and the staff has to take shelter in the basements. After the liberation of Kyiv region from Russian occupation, the NRCRM provided medical assistance to the residents of deoccupied locations such as Bucha, Irpen, Gostomel. The Center provided care to the personnel of the Chernobyl Nuclear Power Plant, who were captured by the enemy forces.

In connection with the constant shelling of Zaporizhzhya NPP and other power plants in Ukraine, and the increasing risk of use of tactical nuclear weapons, the Center has been actively involved in educational work and training on iodide thyroid blocking, individual protection, safety and survival in these difficult times. The Center is providing technical support to the WHO Country Office in Ukraine. In September 2022, REMPAN Coordinator visited Ukraine and held a meeting with the staff of the NRCRM to discuss current situation in Ukraine and the Center's potential to support WHO's work in Ukraine (see photo below).



### ◆ ICRP Committee 4, Task Group 120 has developed a new publication on [“Radiological Protection of People and the Environment in the Event of a Large Nuclear Accident”](#)

This public advice explains to a lay-reader what to do in case of a nuclear detonation and how to protect oneself during the first 24 hours after the explosion.

On top of that there is a 5-minute-video to watch for further information that can be lifesaving.

[Can you survive nuclear fallout? - Brooke Buddemeier and Jessica S. Wieder - YouTube](#)

### ◆ Potassium Iodide (KI)

The Centers for Disease Control and Prevention (CDC) have provided useful information on Potassium Iodide for protection of the thyroid in radiation emergencies.

Two experts, Dr. Armin Ansari and Dr. Art Chang, share their knowledge on the topic. Additionally there are some interesting videos to find on the on the CDC website.

<https://youtu.be/QkPz63htRms>

<https://youtu.be/lhE4QAWL59g>

<https://youtu.be/Ry2YpGjnag>

For further information on radiation emergencies click the link below.

[Radiation Emergencies | NCEH | CDC](#)



## News from the Network Members

### ◆ The QST/NIRS webinar series on “Diagnosis and Treatment of Radiation Injuries”

*By H. Saijo (National Institutes for Quantum Science and Technology (QST) / National Institute of Radiological Sciences (NIRS), Japan)*

The QST/NIRS webinar series on “Diagnosis and Treatment of Radiation Injuries” provides those who have participated in our previous training courses, workshops, or symposiums on radiation emergency medicine with the information helpful for diagnosing and treatment for three major radiation injuries: Local Radiation Injury (LRI), Acute Radiation Syndrome (ARS), and internal contamination. Another purpose of this webinar series is to establish a close network among previous participants. This webinar series consists of lectures, Q&A sessions and discussions, focuses on interactivity between lecturers and participants. The first webinar in this webinar series, entitled “External exposure (1) Local Radiation Injury”, held via WebEx on 30<sup>th</sup> May 2022. A total of 12 professionals from 8 countries attended to this webinar. Two in-house lecturers gave the overview and the surgical treatment of LRI, and Dr. Radia Tamarat from IRSN (France) presented on “Cellular Therapies for Treatment of Radiation Injury”. We could share past LRI accident cases, plastic surgical procedures such as skin grafting or flap surgery and novel cellular therapies including mesenchymal stromal cells, which may have an impact on tissue and organ regeneration. The subsequent discussion focused on complications of LRI, adverse events of cellular therapy, and the system for radiation emergency medicine. We are planning to upload the recorded lecture video to our web page. The next webinar is planned for "External Exposure (2) Acute Radiation Syndrome".



### ◆ WHO on-line training courses

[OpenWHO platform](#) offers hundreds of on line training programs on various topics including those on preparedness, response, risk assessment and clinical management of health emergencies.



### ◆ 5<sup>th</sup> IRSCC Online Seminar on “How does radiation cause biological effects?” & “Radiological Health Science’s at CSU” in November 2022



Prof. Dr. Thomas E. Johnson from the Colorado State University, United States, held this hybrid session in the Institute of Radiation Emergency Medicine (IREM) in the Hirosaki University, Japan. The event was hosted by IREM faculty led by Prof. Tomisato Miura and Dr. Donovan Anderson.

[Holding the 5th International Radiation Science Collaboration Center Seminar | HIROSAKI UNIVERSITY INSTITUTE OF RADIATION EMERGENCY MEDICINE \(hirosaki-u.ac.jp\)](#)



## News from the Network Members

### ◆ First joint annual meeting of ARADOS (Asian Radiation Dosimetry Group) and KREDOS (Korea Retrospective Dosimetry Network) in Seoul November 2022

*By Dr. Liz Ainsbury, UKHSA (UK Health Security Agency) Deputy Lead, UK*

The first joint annual meeting of ARADOS (Asian Radiation Dosimetry Group) and KREDOS (Korea Retrospective Dosimetry Network) took place at the Korea Hydro & Nuclear Power Radiation Health Institute from 2<sup>nd</sup> to 4<sup>th</sup> November 2022



in Seoul. Two representatives of EURADOS WG10 (Michael Discher and Clemens Woda) were asked by the Asian communities to present the organisation and activities of EURADOS/WG10 and a review of the ICRU Report 94. EURADOS can be seen to have served as a template for the founding of ARADOS and WG10 for KREDOS.

About 70 experts and scientists from various institutes of Korea, China and Japan attended this international meeting and gave updates of recent research results in different topics, such as reference radiation fields, external & internal dosimetry and biological dosimetry. Presentations were either given online or in person at the first meeting of the Asian dosimetry communities after the COVID-19 break.

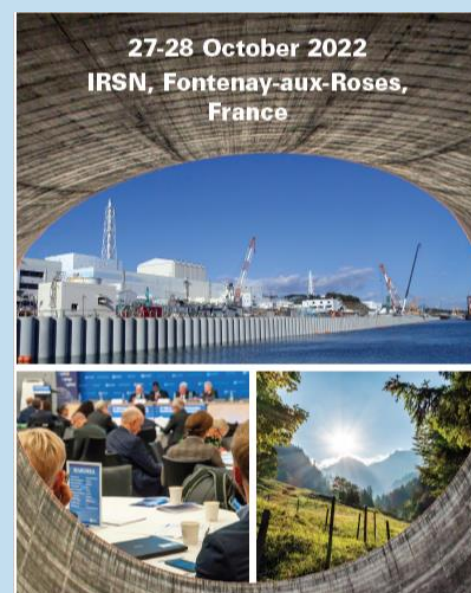
During the closing session the chairpersons of both organisations, Osamu Kurihara (ARADOS), and Jungil Lee (KREDOS), showed their gratitude to all presenters and were impressed by their scientific outcome. Furthermore, the wish was expressed that the Asian and European dosimetry networks could strengthen their interaction and collaborations in the future.

**IRSN-MEA/OECD Workshop Preparedness for Post-Nuclear Accident Recovery – Paris/France, 27-28 October 2022.**

*By Jan Hendrik, NEA/OECD*

Since the Chernobyl and Fukushima Daiichi nuclear power plant accidents, the notion of a sustainable recovery from a nuclear or radiological accident has been the focus for many in the international radiological protection community, as well as for policy and decision makers around the world.

The workshop marked the conclusion of the activities of the NEA Expert Group on Recovery Management. This group was formed by the NEA Committee on Radiological Protection and Public Health in 2019 to develop an operational framework of preparedness for recovery management. Some 90 participants joined the workshop representing radiological protection professionals and researchers, representing regulators, research institutions and government entities.



## News from the Network Members

- ◆ **Updates from Radiation and Nuclear Countermeasures Program (RNCP), National Institute of Allergy and Infectious Diseases (NIAID) National Institutes of Health (NIH) - Rockville, MD, USA**

*By Andrea L. DiCarlo-Cohen, PhD, Director RNCP, NIAID/NIH*

2022  
 Gastrointestinal  
 Acute Radiation  
 Syndrome (GI-ARS)  
 Workshop:  
 Mechanisms,  
 Models, Markers,  
 and Medical



*Countermeasures.* On August 29-30, 2022, a hybrid in-person/virtual workshop brought together scientists from academia, industry, and government to assess the state of the science addressing GI-ARS. Program staff from RNCP/NIAID, the U.S. Food and Drug Administration, and the Biomedical Advanced Research and Development Authority planned the workshop, which included speaker sessions

on clinical manifestations of GI injury and GI-ARS, animal models, mechanisms, and biomarkers of GI-ARS, and MCMs currently in development. In addition, a session dedicated to regulatory issues was included with speakers from FDA. There were 214 registrants (26 speakers; in-person & remote) and 39 in-

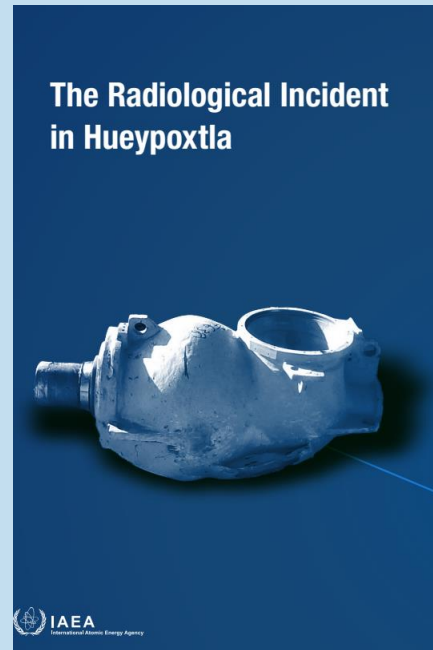
person attendees. A meeting report is planned for publication in a peer-reviewed journal.



- ◆ **Report on the Radiological Incident in Hueypoxtla, Mexico**

The incident in which individuals stole a teletherapy unit head and received radiation by it happened 2013 in Mexico and has been followed up by the IAEA. They now have written a summary of the further actions taken in this incident by Mexican authorities.

The report was published in October by the IAEA and can be read [downloaded here](#).



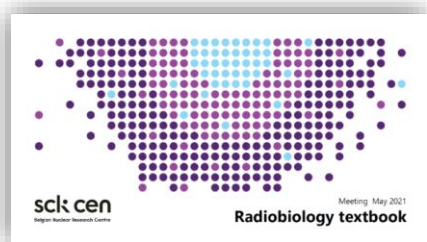
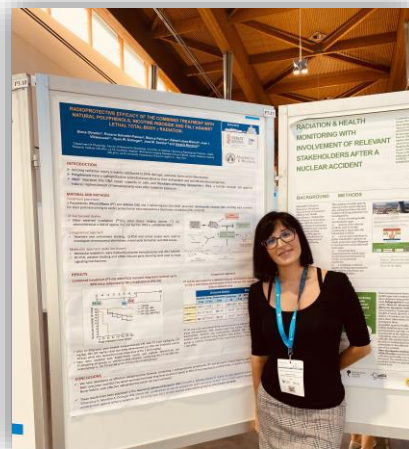


## News from the Network Members

### ◆ News from Hospital La Fe in Valencia, Spain

By Dr. Alegría Montoro

In the last years, two Spanish research groups, the Biodosimetry Laboratory of the Radiological Protection Service (RPS)-La Fe University and Polytechnic Hospital (Valencia), member from REMPAN and the Physiopathology Cell Unit (UFC-University of Valencia) have collaborated on the development of an oral radioprotective formula which minimizes the damage induced by ionizing radiation. Our results have been published in the *Journal of Advanced Research* (doi: 10.1016/j.jare.2022.05.005) and a patent was filed to protect the intellectual property of the discovery (PCT/EP2022/051038, "Compositions and methods for preventing, ameliorating, or reducing radiation-induced diseases", <https://worldwide.espacenet.com>). Dr. Alegría Montoro presented these advances at the European Radiation Protection Week meeting (ERPW2022, Estoril, Portugal). During the ERPW2022 meeting, ICRP presented the recommendations on [Advice for the Public on Protection in Case of a Nuclear Detonation whose translation into Spanish \(Recomendaciones para la población en caso de detonación nuclear\)](#) has been made by members of the emergency group of the Spanish Society of Radiological Protection (SEPR), among which is Dr. Montoro.



Hospital La Fe has also participated in meetings of the European biodosimetry laboratories (RENEB), the international networks of radiological protection in medicine (EURAMED) and the international networks of response in medical emergencies (REMPAN).

Recently, we published a review entitled: "Nuclear and Radiological Emergencies: Biological Effects, Countermeasures and Biodosimetry". Antioxidants (Basel) and, it is important to mention that Drs. Montoro and Obrador (heads of RPS and UFC, respectively) are:

- Co-Editors of [the special issue](#) of the journal *Antioxidants* (Q1 and D1, Impact Factor 7.675), entitled: "Ionizing Radiation, Antioxidant Response and Oxidative Damage: Radiomodulators"
- Co-authors of chapters III (Molecular Radiation Biology) and XI (Radioprotectors, Radiomitigators and Radiosensitizers) of the book "Radiobiology Texbook", currently In Press (Springer Editorial). Editor Prof. S. Baatout, Head of Radiobiology Unit Belgian Nuclear Research Center.

### ◆ 6th ICRP Symposium in Vancouver, Canada, in November 2022

By Dr. Liz Ainsbury, UKHSA (UK Health Security Agency) Deputy Lead, UK

In November 2022, over 20 scientists from UKHSA and other research institutions in the UK attended the [6th ICRP Symposium](#) in Vancouver, Canada. The theme of the symposium was "Radiological Protection - The Next Generation" focusing on the review of the System of Radiological Protection to produce the next set of fundamental recommendations that will guide legislation, practice, and policy around the globe, which will take place over the next decade. In addition to the symposium, the event allowed the various ICRP Committees and Task Groups to come together and focus on the next steps in their work. The symposium was attended by approximately 400 researchers and radiation protection professionals from around the world, and was an excellent chance to catch up with friends and colleagues as well as to discuss the review of the System and its potential implications.





## News from the Network Members

### ◆ Field Emergency Medical Officer Training in Australia

*By Marcus Grzechnik, PhD, and Chennel Allan*

The Australian Radiation Protection and Nuclear Safety Agency ([ARPANSA](#)) has identified through a national survey the need to reinvigorate the training around medical management of radiation injuries amongst medical personnel. ARPANSA recently coordinated initial jurisdiction-based training in the city of Melbourne (within the State of Victoria), for Victoria's field emergency medical officers (FEMOs), who assist in emergency ambulance responses to specialised medical incidents. This jurisdictional-led familiarisation and training day allowed all responding agencies to come together and understand how they would all work collaboratively to a transport accident. This wasn't dissimilar to a tabletop exercise with each emergency service walking through what they would contribute and how they would resolve the situation. This provided great insight to the FEMOs on how they would respond effectively within an incident.

The course then proceeded to the provision of training for how these medical physicians would treat patients in the first 4 – 6 hours after a radiological incident. Included was training on:

- What they might expect,
- How to protect themselves, and
- How to dispose of the contaminated medical waste created at the scene of an incident.

This was a very productive day for the physicians, and ARPANSA is undertaking planning to continue this jurisdictional-led training throughout Australia in 2023 and beyond. Further to this initial training opportunity



ARPANSA, in Collaboration with [REAC/TS](#), will be holding a national medical training course for its emergency physicians and first responders in early 2023. This will provide a more in-depth look

at radiation injuries and how to diagnose them, along with training on the treatment of patients after the initial 4 – 6 hours within the hospital setting. These opportunities, which are being brought to the medical community by ARPANSA, show exciting progress in the rejuvenation of medical preparedness works in the radiological and nuclear space throughout Australia.

### ◆ Tangra table-top exercise in Bulgaria, September 2022

*By Assoc. Prof. Jana Djounova, MD, PhD,  
Director National Centre of Radiobiology and  
Radiation Protection- Sofia, Bulgaria*

The experts of the NCRRP took part in the table-top exercise "Tangra" (TTX), on September 7-9, 2022.

The Ministry of Foreign Affairs of Bulgaria and the US Department of State, Bureau of International Security and Non-Proliferation of Terrorism (WMDT) hosted the exercise.

The TTX was focused on the Bulgarian Standard Operating Procedure (SOP) for R/N detection in case of identification of illegal transfer or transport of nuclear material, radioactive substances or radioactive sources in the areas of international airports, ports and border checkpoints for Republic of Bulgaria. Emphasis was placed on the decision-making processes, information sharing, communication and coordination, and resource deployment for deterrence, detection and investigation of radiological material beyond regulatory control. It provided participants with an opportunity to improve current operational procedures, coordination and comms.

Experts from the US shared their best practices, experiences, and challenges/mitigation strategies to support the learning objectives.

## News from the Network Members

### ◆ NREMC-KIRAMS Marks 20th Anniversary

◆ *By Sunhoo Park, National Radiation Emergency Medical Center (NREMC), Korea Institute of Radiological and Medical Sciences (KIRAMS), Republic of Korea*

The National Radiation Emergency Medical Center (NREMC) of the Korea Institute of Radiological and Medical Sciences (KIRAMS) celebrated its 20<sup>th</sup> anniversary since it was established in September 2002. Commemorative events were held on 16<sup>th</sup> December 2022 to highlight key achievements and discuss its way forward.



NREMC, as one of the 4 main divisions under the umbrella of KIRAMS, acts as a focal point in operating and maintaining the network of designated hospitals which will respond to a radiation emergency in Korea. The network originally began with 10 hospitals, but now it has expanded to 31 hospitals to cover the whole nation.

In addition, as the public concern for radiation arising from the 2011 Fukushima accident and 2018 radioactive mattress scandal has increased, NREMC has conducted various activities to relieve anxiety and communicate with the public. Moreover, NREMC has recently engaged with supporting pre-distribution of iodine thyroid blocking agent, and investigating health effects of occupational exposure among radiation workers in Korea.

Currently designated as the WHO Collaborating Centre for Radiation Emergency Preparedness and Response, NREMC-KIRAMS is scheduled to host the 17<sup>th</sup> WHO-REMPAN Coordination Meeting in Seoul, September 2023.

### ◆ Updates from Women in Nuclear (WiN) and Emergency Preparedness and Response Initiative (WIN-EPRI)

*By Khadija Bendam, WiN Morocco president*

Ms Khadija Bendam spoke at the International Conference on Applications of Nuclear Techniques for Sustainable Socio-economic Development on 24-26 October 2022, Islamabad, Pakistan, organized by Women In Nuclear (WiN) Pakistan.

She was invited by the World Institute for Nuclear Security and the Civilian Research and Development Foundation Global at the regional workshop on Strengthening Nuclear Security for Emerging Reactor Technologies, organized from 8-9 November 2022, in Amman, Jordan. The two days of high-level discussions at the workshop focused on nuclear safety, security, safeguards and the use of small-model reactors (SMRs). The presentation of Ms Bendam, at both events focused on women's roles in capacity building in safety, security, safeguards and SMRs.

To empower women of REMPAN and promote their role and contribution to nuclear sciences, WiN is open for new members. Kindly contact Ms. Khadija Bendam if you have any questions at [winepri5@gmail.com](mailto:winepri5@gmail.com)

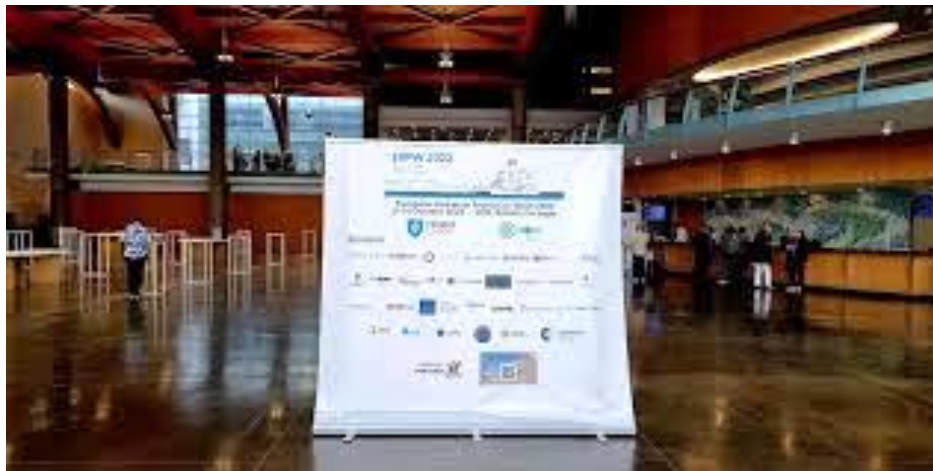




## News from the Network Members

### ◆ The RENEb General Assembly in Estoril/Portugal in October 2022

By Professor Dr. Matthias Port, Head of Bundeswehr Institute of Radiobiology, Munich, Germany



During the ERPW2022 in Estoril/ Portugal RENEb members met for the General Assembly. Here, the annual report of the association was presented by the chair (Ursula Oestreicher; Federal Office for Radiation Protection, BfS, Germany) and recent research activities were discussed.

RENEb membership is open to individuals and legal entities dealing with dose reconstruction for emergency preparedness or scientific research. Potential candidates will contribute to RENEb by promoting the objectives of the association according to the statutes. The application for membership are welcome and has to be submitted to RENEb via [reneb@bfs.de](mailto:reneb@bfs.de) . Even if a biological dosimetry or retrospective physical dosimetry lab is not established yet, a RENEb candidate membership is possible until the criteria are fully established. More information can be found on the RENEb webpage ([www.reneb.net](http://www.reneb.net) ).

The results of the inter-lab-comparison ILC2021 were presented by M.Port and M. Abend (Bundeswehr, Institute of Radiobiology, BIR, Germany) and D. Endesfelder (Federal Office for Radiation Protection, BfS, Germany).

Publications are in preparation and expected to be published in the frame of a special issue in Radiation Research in 2023 to be available for the whole scientific community for information and discussion. Further presentations were given about a virtual table top exercise concerning dose response curves and dose estimation applied to Dicentric Chromosome Assay applying the recently developed Biodose Tools software for dose estimation (Juan Martinez Guerrero, Institut de Radioprotection et de Sûreté Nucléaire, IRSN; France) and information about a survey to update contact details and to gather information on laboratories emergency capacity, capability and sample transport (Jayne Moquet, UK Health Security Agency, UKHSA, UK ).

Furthermore, the upcoming activities of RENEb were discussed – more information will be provided in the next newsletter or on our webpage ([www.reneb.net](http://www.reneb.net)).

### ◆ Bundeswehr Institute of Radiobiology (BIR) meets Health Canada

By Professor Dr. Matthias Port, Head of Bundeswehr Institute of Radiobiology (BIR), Munich, Germany

In Oct 2022, Dr. Matthias Port visited Health Canada, one of the REMPAN Liaison Institutions. Following a short presentation about the research activities of BIR, Dr. Chunsheng Li and Dr. Ruth Wilkins presented various laboratories of Health Canada. Of special interest was the biodosimetry laboratory offering excellent expertise and instruments for cytogenetic analysis, and the innovative options to further develop the  $\gamma$ H2AX technique. Special laboratories, like the acoustic and EMF installations and the 3D-printing farm for phantoms to be used for *in vivo* counting were especially interesting. During the visit enhancing collaboration was discussed. The onsite meeting of both REMPAN partners is important not only to strengthen possible collaborations but also to build trust for the work within networks like REMPAN. Dr Port is grateful for the wonderful hospitality of Ruth, Chunsheng and their teams.



## News from the Network Members

### ◆ Analysis of the use of aeromedical modules for medical evacuation of seriously injured in emergency situations, including radiation damages

By Prof. A. Aleksanin (NRCERM, WHO CC - St.Petersburg, Russia)



EMERCOM of Russia, equipped with resuscitating medical modules in airplanes and helicopters (MMA and MMH), has been successfully carrying out medical evacuation of seriously injured in emergency situations, including radiation damages, to the specialized medical institutions for many years.

Based on the results of the use of the medical modules, it was proved that their use in mass ambulance aircraft evacuation is fully justified. During the flights, sparing transportation of the injured, complete monitoring and compliance with the continuity of the treatment process is provided. With the use of MMA and MMH, the quality of mass ambulance aircraft evacuation of extremely seriously injured has significantly improved and the delivery time from the site to specialized hospitals has been reduced, as well as the lethality of victims.

The analysis of the effectiveness of the use of medical modules showed that the use of modules during the ambulance aircraft evacuation of seriously injured reduces mortality at the pre-hospital stage by 3.3 times, at the hospital stage – by 2 times ( $p < 0.05$ ).

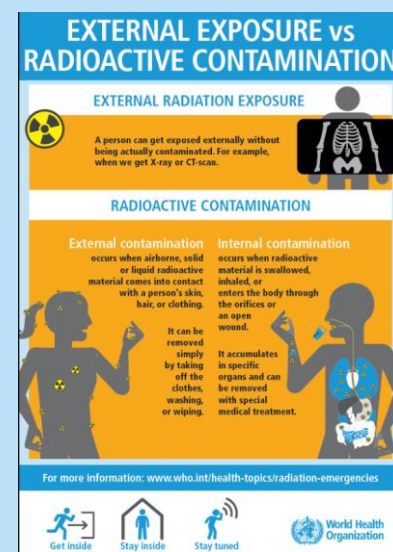
The conducted research is especially relevant in the conditions of the steady increase in the number of natural and man-made disasters that causes the need for urgent ambulance aircraft evacuation of seriously injured to the specialized federal medical institutions with appropriate equipment, advanced technologies and highly qualified personnel to provide specialized high-tech assistance to victims. Such medical institutions can be located at a considerable distance from the place of emergency.

### ◆ REAC/TS has developed new reference products for their website:

- Fact sheets for Medical Providers <https://orise.orau.gov/resources/reaccts/documents/factsheet.pdf>
- Do I need to take Potassium Iodide? <https://orise.orau.gov/resources/reaccts/documents/do-i-need-to-take-potassium-iodide.pdf>
- Health Physics Emergency Fast Facts <https://orise.orau.gov/resources/reaccts/documents/hp-fast-facts.pdf>

### ◆ New WHO Infographics on topics pertaining to radiation emergencies:

- [Nuclear power plant emergency](#)
- [External exposure vs. radioactive contamination](#)
- [Self-decontamination](#)
- [Iodine thyroid blocking](#)
- [Advice for pregnant women](#)
- [Prussian Blue](#)





## News from the Network Members

### ◆ Radiation Injury Treatment Network (RITN) Exercise

By Jen Aldrich, M.A., Radiation Injury Treatment Network (RITN) Program Manager and Curt Mueller

In September 2022, RITN conducted an exercise with thirteen acute-care hospitals, five health departments, three emergency management agencies, and several other response partners to address the receipt, triage, and care of casualties following the detonation of an improvised nuclear device in a neighboring state. Exercise activities were designed around the following overarching objectives:

- Coordinate command and control functions within hospital command centers, emergency management, and local health departments.
- Identify staff, equipment, medications, and supplies necessary to care for a surge of casualties with radiation-only injuries, burn/blast injuries, and combined radiation-trauma injuries.
- Identify resources for the activation of the radiological survey and medical decontamination teams.
- Triage radiation injuries and make treatment determinations for inpatient or outpatient level of care.
- Coordinate housing, transportation, and other assistance needs for families of radiation-injury casualties that have arrived from distant locations.

Exercise materials and a copy of the after-action report can be accessed on the RITN website ([www.ritn.net/exercise](http://www.ritn.net/exercise))

### ◆ REAC/TS participates in NATO medical CBRNE (chemical, biological, radiological, nuclear, explosive) exercise.

By D. Carol Iddins, MD, Director of the Radiation Emergency Assistance Center/Training Site (REAC/TS)



Exercise CLEAN CARE 2022 was conducted from 13 to 24 June 2022 at the Military Training Area Tisa, Czech Republic with 236 players from 13 nations. REAC/TS Director, Carol Iddins and Health Physicists Josh Hayes and John Crapo deployed to the exercise to perform training; assistance in execution and conducting of the scenarios; and simulated patient medical case management with radiological/nuclear (R/N) scenarios, that REAC/TS helped create. This is the first NATO exercise that REAC/TS has been invited to participate in, however, the original exercise was postponed due to the pandemic and much short term planning went into the execution of the exercise and with the Czech Military supplying the training site. The exercise involved chemical, biological, radiological, and nuclear scenarios, many of which held an explosive component.



## News from the Network Members

### ◆ Training course on Radiological and Nuclear Hazards - Preparedness and Response to Accidental and Terrorist Events and Emergencies - on 27 June-1 July, 2022 in Ankara, Türkiye

*By N Algashov - WHO European Centre for Preparedness for Humanitarian and Health Emergencies (CPHHE), Istanbul, Türkiye*



Training was delivered jointly by WHO, UN Counter-Terrorism Centre, IAEA, and national authorities. Over 30 specialists from the Türkiye Ministry of Health, Ministry of National Defense, the Disaster and Emergency Management Presidency of Türkiye (AFAD), the Nuclear Regulatory Agency, and provincial health directorates participated.

The course covered medical, biological, security, safety and operational aspects of the radio-nuclear emergencies and included one-day table-top exercise (TTX) entailing a radiological incident scenario. In his welcoming remarks, the Head of the WHO Country Office Dr Batyr Berdyklychev highlighted: “We are conducting this training for Türkiye authorities led by one of the best and finest in the business – our new partner United Nations Office of Counter-Terrorism... we are also pleased to have IAEA, our technical partner in this area joining hands too”. Dr Irshad Shaikh, a.i. Head of the WHO European Centre for Preparedness for Humanitarian and Health Emergencies, emphasized, “Preparedness for radio-nuclear emergencies is critical for health security, and is an important part of core capacities strengthening under IHR (2005) for member states. With participation of stakeholders from various sectors, this training helped to strengthen intersectoral coordination while addressing radio-nuclear emergency response from different angles and perspectives. The TTX also provided an opportunity for putting learned knowledge into practice.” WHO and UNCCT plan to join forces soon to implement additional national and intercountry training sessions on radio-nuclear, chemical and biological safety for Member States.

### ◆ Cooperation with the German Television

*By Dr. Tanja Weber, University Hospital Würzburg, Germany*

Bayerischer Rundfunk (BR) Television visited the Regional Radiation Protection Center (RSZ) – WHO CC and REMPAN member in Würzburg in Sept 2022, to film a short documentary on how the center will respond to radiation emergencies. Monitoring of a contaminated and wounded patients was simulated. Decontamination process and integrated operating room were demonstrated. Head of the Nuclear Medicine at the University Hospital Würzburg, Prof. A. Buck was interviewed by BRTV and spoke of general aspects of radiation, radioactivity in food, doses received natural sources and possible risks at higher doses. He explained what people should do in the case of a nuclear detonation. Finally he gave an insight into the diagnostic and therapeutic possibilities of radionuclides which are already used in medicine today.

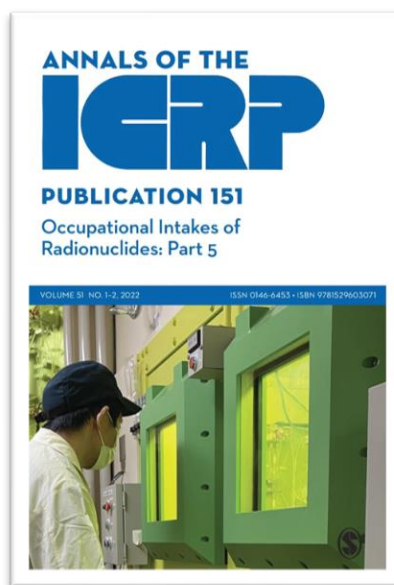
Click on the screenshot below to view the documentary:





## New Publications

- ◆ ICRP, 2022. Occupational uptakes of radionuclides - Part 5. ICRP Publication 151. Ann. ICRP 51 (1–2). Access through ICRP website.
- ◆ ICRP, 2020. Radiological protection of people and the environment in the event of a large nuclear accident: update of ICRP Publications 109 and 111. ICRP Publication 146. Ann. ICRP 49(4). – is made available for free [download here](#)



### ◆ Papers in scientific journals:

DiCarlo AL, Carnell LS, Rios CI, Prasanna PG. [Inter-Agency Perspective: Translating Advances in Biomarker Discovery and Medical Countermeasures Development Between Terrestrial and Space Radiation Environments](#). Life Sci Space Res (Amst). 2022 Nov; 35:9-19. doi: 10.1016/j.lssr.2022.06.004 .

Coleman CN, Cliffer KD, DiCarlo AL, Homer MJ, Moyer BR, Loelius SG, Tewell AW, Bader JL, Koerner JF. [Preparedness for a 'No-Notice' Mass-Casualty Incident: a Nuclear Detonation Scenario](#). Int J Radiat Biol. 2022;98(5):873-877. doi: 10.1080/09553002.2021.2013573.

Lagergren Lindberg M, Hedman C, Lindberg K, Valentin J, Stenke L. [Mental health and psychosocial consequences linked to radiation emergencies-increasingly recognised concerns](#). J Radiol Prot. 2022 Jul 13;42(3). doi: 10.1088/1361-6498/ac7d19 .

Benderitter M, Caire-Maurisier F, Crambes C, Pourcher T, Martin JC, Darcourt J, Souidi M. [Potassium iodide \(KI\) prophylaxis in the case of a nuclear accident: A new marketing authorization in France](#) - Environmental Advances V. 9, Oct 2022, doi <https://doi.org/10.1016/j.envadv.2022.100293>

Tsegmed U, Rendoo D, Tsegmed O. The importance of improvement of radiation emergency medical preparedness and response system in Mongolia. Environmental Advances, V. 9, Oct 2022, doi <https://doi.org/10.1016/j.envadv.2022.100307>

### ◆ New REMPAN member: Prof. Damir Zaredinov – Chief Radiologist at the Ministry of Health of the Republic of Uzbekistan,



More than 30 years of experience in the field of radiation safety and hygiene, he is heading the National Radiation Safety Training Center, which is a part of the Institute of Continuing Education. Formed in the leading institutions in the USA, UK, Germany, Russia, India, Iran, Ukraine and many others, he became the nation's lead specialist in the field of radiation and nuclear safety. He organized 47 international training courses on radiation safety, regularly teaches at IAEA's training programmes and continues coordinating international cooperation programs on the problems of radiation and nuclear safety of the Uzbekistan. Prof. Zaredinov is one of the authors of four national laws, multiples national standards and regulations, technical guides and manuals, he is the author of more than 350 scientific articles.

We welcome Prof Zaredinov to REMPAN family and look forward to cooperate with him for strengthening preparedness for radiation emergencies in Central Asia.

## Upcoming Training Courses and Events

- ◆ **Radiation Emergency Medicine (REM) - REAC/TS course teaches treatment and care of patients involved in radiological or nuclear incidents**

The three-day Radiation Emergency Medicine course, presented by REAC/TS as part of the Oak Ridge Institute for Science and Education, emphasizes the practical aspects of initial management of irradiated and/or contaminated patients through lectures and hands-on, practical exercises.

Radiation Emergency Medicine (REM) courses are conducted at our facilities in Oak Ridge, Tennessee.

### Scheduled training dates

March 14-16, 2023 – Registration opens 60 days prior to course

October 31-November 2, 2023 – Registration opens 60 days prior to course

- ◆ **ConRad 2023 – 08-11 May, 2023, Munich, Germany**

*By Dr. Mark Hotz*

The 25<sup>th</sup> Nuclear Medical Defence Conference, **ConRad 2023** will be held in Munich on May 8<sup>th</sup> to 11<sup>th</sup>, 2023. 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. ConRad 2023 will place special emphasis on two topics highlighted in separate key sessions. The first key session “**Medical impacts of the use of nuclear weapons and countermeasures**” will discuss the impacts after the insertion of nuclear weapons as well as the possibilities of suitable countermeasures. The session will refer to threat scenarios as they are currently brought into close proximity by international conflicts. In the second key session “**Internal radiation by radionuclides of emergencies and therapies**” we would like to provide a platform for mutual exchange on previous scenarios, discuss the decisive lessons learned and reevaluate acquired knowledge on the basis of new approaches and recent scientific findings. Please share this conference announcement with your colleagues and entire community.

More details will be found at: [www.radiation-medicine.de](http://www.radiation-medicine.de)

- ◆ **Micro Radiation Emergency Medicine (MicroREM) - REAC/TS course teaches treatment and care of patients involved in radiological or nuclear incidents**

This is an abridged version of REAC/TS' Radiation Emergency Medicine (REM) class. It focuses on the fundamentals of medical care and management of patients involved in radiological or nuclear incidents. Topics include basic radiation physics; radiation detection/measurement/identification; early evaluation and treatment of acute radiation syndrome (ARS), cutaneous injuries, and internal contamination; prehospital and hospital readiness; and patient decontamination.

The microREM course will consist of three consecutive days of four-hour blocks of instruction. At a later date, an optional hands-on workshop will be offered with morning or afternoon sessions in Oak Ridge, Tennessee, where the principles learned are incorporated in a culminating hands-on exercise using live patients with mock injuries and transferable radioactive contamination.

### **Scheduled training dates:**

1-2 February, 2023 (half-day workshops)

11-13 April, 2023 – Registration opens 60 days prior to course

8-9 April, 2023 (half-day workshops)

1-3 August, 2023 – Registration opens 60 days prior to course

8-9 August, 2023 (half-day workshops)





## Upcoming Events

### ◆ Mark your Calendars!

**The 17<sup>th</sup> WHO REMPAN Coordination Meeting will be hosted by KIRAMS in Seoul, Republic of Korea, on 13-15 September 2023** – Info coming soon.



### ◆ The 6th Asian and Oceanic Congress for Radiation Protection

(AOCR6) will be held at Mumbai, India during 07 - 11, February 2023. More details will be found at: <https://www.aocrp6.com/>

### ◆ The 17<sup>th</sup> ICRR – Montreal Quebec / Canada – 27-30 Aug 2023



### ◆ ICRP International Symposia on the System of Radiological Protection – Nov 2023, Tokyo, Japan

More info coming soon: <https://www.icrp.org/page.asp?id=405>



## Disclosure

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### Contacts / Feedback

Dr. Zhanat Carr - REMPAN Secretariat  
Radiation Emergency Medical Preparedness and Assistance, Radiation and Health Unit, Department of Environment, Climate Change and Health (ECH), WHO

Email: [rempan@who.int](mailto:rempan@who.int)

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### Editors

- Zhanat Carr, WHO
- Tanja Weber, UKW, Germany

### Contributors to this issue:

- Ainsbury, Liz, UK
- Aldrich, Jen, USA
- Algashov, Nurlan, WHO/EURO
- Aloisi, Becky, USA
- Bendam, Khadija, Morocco
- Chennell, Allan, Australia
- DiCarlo-Cohen, Andrea, USA
- Djounova, Jana, Bulgaria
- Grzechnik, Marcus, Australia
- Hazell, Gareth, UK
- Hotz, Mark, Germany
- Iddins, Carol, USA
- Kranrod, Chutima, Japan
- Levshukov, Oleg, Russia
- Montoro Pastor, Alegría, Spain
- Mueller, Curt, USA
- Park, Sunhoo, Republic of Korea
- Port, Matthias, Germany
- Saijo, Hiroto, Japan
- Tatsuzaki, Hideo, Japan
- Tazoe, Hirofumi, Japan
- Tokonami, Shinji, Japan
- Weber, Tanja, Germany
- Zaredonov, Damir, Uzbekistan