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EVENTS

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INFORMATION

NEW PUBLICATIONS
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A look back at 10 global health highlights from 2021, including a few issues you might have missed – click here

10 key global health moments from 2021
From the desk of REMPAN Coordinator:

Dear Reader,

The second year of global health crisis, 2021 was a year of colossal efforts in the area of public health. Having lived for two years in pandemic we are finally looking forward with hope.

WHO has continued to lead and coordinate the global efforts to combat the COVID-19 pandemic. Looking back, we grieve for millions of lives lost to pandemic, but we also come to appreciate the progress made towards ending the crisis - hopefully this year! We realize that past two years gave us a lesson in humanity, it brought us all closer and made us stronger. Thank you for your support and cooperation in 2021, thank you for walking it together with us. Thank you for being REMPAN!

IN THE LAST SIX MONTH OF 2021...

We launched two new activities: 1) the revision of the 2007 report on development of stockpiles for radiological and nuclear emergencies; and 2) development of a technical report on assessment and management of contaminated wounds.

In addition, we’ve been working hard with our Guest Editors Dr Evgeniya Ostroumova (WHO/AIRC), Ruth Wilkins (Health Canada) and Eduardo Herrera to develop the Special Issue of the Environmental Advances – an Open Access Journal by Elsevier that will feature the Proceedings of the 16th Coordination meeting of REMPAN held virtually in March. We are grateful to all of you who submitted the manuscripts and also supported the process through peer-review of the articles. The issue is due to being published in the first half of 2022.

WHO continued advocating for the importance of integrating the measures of mental health and psychosocial support (MHPSS) in response to health emergencies and including it in all stages of emergency cycle. This subject is being highlighted and addressed by the WHA Resolutions and the Agenda items of the WHO Executive Board. The WHO MHPSS Framework in Radiological and Nuclear Emergencies launched in Nov 2020 became an important milestone and a first step in bridging the gap between radiation protection and mental health fields. WHO is working with the NEA/OECD’s Expert Group on Non-Radiological consequences of nuclear accidents (EGNR) towards the development of practical solutions to support decision makers to incorporate MHPSS in the emergency plans and procedures. The MHPSS issue was discussed at the Round Table of the IAEA international EPR conference in October 2021 and at the IAEA conference on the Decade of Fukushima in November 2021.

REMPAN Working Group on Internal Contamination Monitoring and Management (iCoMM) finalized the review of the lessons learnt from the accidents involving internal contamination. A bench-mark report based on this collaborative work lead by Dr Chunsheng Li (Health Canada) is in press. In addition, a WG has established a liaison with the EURADOS WG-7 to develop a technical report on assessment and management of contaminated wounds (with participation of CIEMAT, Health Canada, and IRSN).

As a member of HERCA WGE, WHO contributed to its meeting in October 2021. The WG discussed HERCA survey of national policies on ITB. The questionnaire for HERCA survey is based on and the questionnaire used by the WHO for its survey on ITB policies conducted in 2017-2018. A joint publication by WHO and the members of HERCA discussing the national ITB policies is in press (Environmental Advances journal featuring the proceedings of the WHO REMPAN-16 meeting).

The Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE) conducted the Convex-3(2021) nuclear emergency exercise on 26-27 October 2021 hosted by the new Baraka NPP in Abu Dhabi, UAE. Along with several international organizations and 71 member states, WHO was one the key players. We are grateful for all REMPAN members who took part in this exercise and shared their expertise with us, contributing to the success of the exercise.

◆
News from the WHO Secretariat

REMPAN Working Group on the revision of the 2007 Stockpile report has met to finalize the content of the report and review the main components and its consistency. Network members will receive the draft for peer-review within next weeks. We will appreciate the network members timely contribution to this review. The target timeline for the report development includes in addition to the peer-review and incorporation of the comments, editing and graphics, which should be completed by mid-2022.

◆ IAEA’s International Conference on a Decade of Progress after Fukushima-Daiichi: Building on the Lessons Learned to Further Strengthen Nuclear Safety, 08-12 Nov 2021

Dr Maria Neira, Director of WHO’s Department of Environment, Climate Change and Health, delivered a WHO statement at the IAEA’s International Conference on a Decade of Progress after Fukushima-Daiichi: Building on the Lessons Learned to Further Strengthen Nuclear Safety, 08-11 Nov. 2021. Her speech that summarized key public health lessons learned from the consequences of the accident, and can be viewed at: https://youtu.be/bp3dbcnKaqw


◆ Re-designation of WHO Collaborating Centres:
Re-designation of five WHO CCs was completed in the second half of 2021:
- University Hospital of Wuerzburg in Germany – until July 2025;
- QST/NIRS in Chiba, Japan – until September 2025;
- KIRAMS in Seoul, Korea – until August 2025;
- NRCRM in St Petersburg, Russia – until August 2025;
- NCRM in Kiev, Ukraine – until December 2025.

◆ WHO participated at the IAEA’s International EPR-2021 Conference
WHO experts took part at the Round Table N2 on 13 October 2021 that was dedicated to management of non-radiological consequences of nuclear accidents. You can watch the video recording of the Round Table on line at: http://streaming.iaea.org/21720 where the WHO statement was delivered by Dr Fahmy Hanna of the WHO’s Department of Mental Health and Substance Use (see the video starting from 2:05:00)

REMPAN experts who also participated in the Round Table are Dr Michio Murakami from Fukushima Medical University, and Ms. Jaqueline Garnier-Lepage from NEA/OECD, and Ms. Veronica Smith from EPA Ireland who chaired the Round Table.
News from the WHO Secretariat

◆ Global WHO Evidence-to-Policy (E2P) Summit - 15-17 Nov 2021

A core topic of the WHO Global Evidence-to-policy (E2P) summit has been how to bundle the knowledge gained in situations like the COVID-19 pandemic to develop precise, effective strategies for health policy. The challenges in implementing those strategies into national institutions have further been highlighted. It has been proposed to continue promotion of networking and forming new connections across the different partners in those workstreams. Invited speakers have been, amongst others, Angela Merkel, former Chancellor of the Federal Republic of Germany, Tedros Adhanom Ghebreyesus, WHO Director-General and Soumya Swaminathan, WHO Chief Scientist. Find more information on the corresponding website:

WHO E2P Summit 2021 | WHO E2P Summit 2021

◆ #Ready4Response curriculum now on OpenWHO.org

A new core curriculum for emergency response is added to OpenWHO.org. It builds the knowledge and skills of health workers to lead the multisectoral response to emergencies wherever they occur. Diseases, floods, hurricanes, conflicts and chemical events. Each of these emergencies can cost lives and cause long-term health impacts. As the COVID-19 pandemic clearly demonstrated, the consequences of emergencies can wreak havoc across the globe overnight.

The #Ready4Response curriculum trains people on the frontline to respond first and respond fast. If interested, we invite you to enrol in the courses of this training package:

Ready4Response Tier 1: Response context and principles
Ready4Response Tier 2: Systems, structures and skills

We invite you to join and share this link to the free learning platform OpenWHO.org and to the Ready4Response course with your networks.

◆ New WHO Guidance on Research Methods for Health Emergency and Disaster Risk Management:

Responding to the emerging needs for health sector contribution to disaster risk reduction highlighted in the Sendai Framework for Disaster Risk Reduction 2015-2030, WHO has established in 2018 WHO Thematic Platform for Health Emergency and Disaster Risk Management Research Network (Health EDRM RN), which contributes to the implementation of the WHO Health EDRM Framework published in 2019.

WHO Kobe Centre in Japan, as the Secretariat of this global research network, has facilitated the development of the WHO Guidance on Research Methods for Health EDRM (the Guidance) – the first comprehensive guide how to plan, conduct, manage and report research for this emerging research area which covers disaster medicine, disaster nursing, public health, epidemiology and other related natural and social science. The Guidance was developed through the collaboration with 168 global experts. Multiple HQ departments and all Regional Offices have supported the development through chapter writing, peer review and editorial work.
News from the Network Members

◆ Opening of the Dose Assessment Building for Advanced Radiation Emergency Medicine in Japan - By Dr Hideo Tatsuzaki (NIRS/QST)

A new facility, the Dose Assessment Building for Advanced Radiation Emergency Medicine, has been completed at the National Institutes for Quantum and Radiological Science and Technology (QST) in Chiba, Japan, and its inauguration ceremony was held online on 25 May 2021. Several days prior to this online ceremony, on 19 May 2021, an unveiling ceremony was held on-site by a limited number of QST executives.

Since 2019, the QST has been designated by the Nuclear Regulation Authority (NRA) as Japan’s National Core Center for leading and coordinating four Advanced Radiation Emergency Medical Support Centers—i.e., Hirosaki University, Fukushima Medical University, Hiroshima University and Nagasaki University. As part of the further enhancement of radiation emergency medicine (REM) in Japan, this new facility was developed to expand the REM capability of the QST.

The facility was designed with a particular focus on strengthening the capability of internal dose assessment at the QST based on the experiences of the internal contamination accident with plutonium compounds at the Japan Atomic Energy Agency in 2017. The numbers of draft chambers and other instruments for bioassay (e.g., radiochemical analysis of excreta samples) were substantially increased compared to those at the old facility at the QST. In addition, a state of the art in-vivo counting system that functions both as a whole-body counter and a lung counter was newly installed at the facility.

At the inauguration ceremony, Toshio Hirano, the President of the QST, addressed the origin of the National Institute of Radiological Science (NIRS, the former institute of the QST), which was established in 1957 to respond to social concerns related to radiation as a result of the Daigo Fukuryumaru (Lucky Dragon) incident of 1954, in which 23 fishermen on board a Japanese tuna boat were exposed to fallout from a thermonuclear test at the Bikini atoll. He also explained that the NIRS had remained dedicated to REM in Japan since then, and the role of this new facility would be very important not only for responding to rare radiation accidents that could happen at any time, but also for developing experts in the field of REM.

Together with the other Advanced Radiation Emergency Medical Support Centres, the QST will help to strengthen the system for REM in Japan. We hope that the new facility will be a base for promotion of the development of new techniques for dose assessment and experts in this field.

◆ Local radioactive contamination in the center of Chelyabinsk (Russian Federation) — By Dr A. Akleyev (URCRM)

An increased background radiation in Truda Street in Chelyabinsk was registered on November 22, 2021. At the base of an earlier dismantled metal pole of advertising structure, the exposure dose rate of gamma radiation was about 3,100 μR/hour, at a distance of 1 m from the center of the metal pole - 170 μR/hour. Spectrometry showed the presence of natural $^{226}$Ra. It allows assuming that the metal pole of the advertising structure was made from a metal pipe that may have previously been part of an oil pipeline.

On November 24, the employees of "Radio-Izotopnye Pribory" LLC made excavation and dismantled the rest of the pole, concreted the contaminated spot (photo).

None of the residents of Chelyabinsk apply for medical help in connection with this incident in the clinic of the WHO CC Urals Research Center for Radiation Medicine. Specialists of the CC URCRM advised local authorities on possible health effects. At present, investigations into the incident and radiation monitoring are being carried out in the places where advertising structures are erected.
News from the Network Members

◆ Second workshop on “Clinical Management of Irradiated Patients” in September 2021 – by Nina Mosimann and Daniel Storch (SFOPH)

In Switzerland, the Federal Office of Public Health (FOPH) ensures the preservation of knowledge on the treatment of severely irradiated persons. Since 2019, a collaboration has been established between the FOPH and the University Hospital Zurich (USZ), which is the national reference hospital for the medical care of radiation victims. Also the Swiss National Accident Insurance Fund (SUVA) and the Swiss Federal Nuclear Safety Inspectorate (ENSI) are part of this collaboration. The main goal is to create, strengthen and maintain the corresponding necessary capacities. Thus, there is a regular exchange of knowledge among the interested and involved hospitals in Switzerland. In September 2021, the second workshop on “Clinical Management of Irradiated Patients” was organised together with the USZ, the Coordinated Medical Service (CMS) and the Institute for Radiobiology of the German Armed Forces (InstRadBioBw). Representatives from various Swiss hospitals, SUVA, ENSI and the WHO participated. Due to the pandemic, the workshop was held on a hybrid basis. The InstRadBioBw acts in the field of radiobiology and radiation medicine on a university level in research, teaching and medical expertise. The view across the border to Germany and the subsequent discussion showed once again the great importance of an established and well-known network among hospitals and experts in the field of medical preparedness for radiation accidents. USZ presented a recently established information website for the treatment of severely irradiated persons (Strahlenunfall – Universitätsspital Zürich (usz.ch)). The CMS is the national network for the control and coordination of medical services in all situations (ordinary, special and extraordinary) and ensures the coordination between experts, institutions and the healthcare system. The contribution of CMS showed the necessity for the connection of all corresponding networks and the establishment of a knowledge and exchange platform for the decontamination hospitals. In order to further strengthen our national network, the next workshop is already in the planning and will take place in spring 2022. This time it will be aimed as well at Lead Emergency Physicians who would provide primary care in case of a radiation emergency.

◆ PHE’s ‘rebrand’ to UKHSA

By Liz Ainsbury (UKHSA)

On the 1st October, Public Health England was replaced by the UK Health Security Agency (UKHSA) and Office for Health Improvement and Disparities. The UKHSA will be responsible for planning, preventing and responding to external health threats, and providing intellectual, scientific and operational leadership at national and local level, as well as on the global stage. UKHSA will ensure the nation can respond quickly and at greater scale to deal with pandemics and future threats. UKHSA is an executive agency, sponsored by the Department of Health and Social Care. In terms of radiation protection research and services, all the related activities that were previously provided by the Centre for Radiation, Chemical and Environmental Hazards (CRCE) within PHE have transferred to the UKHSA – you can read about the variety of different things we do on the UKHSA protection services website: https://www.ukhsa-protectionservices.org.uk/ and also on our new research site (which is live, but is still under development): https://research.ukhsa.gov.uk/.

PHE / UKHSA colleagues’ email addresses have not changed so for now please continue to contact us on PHE email addresses. This change is planned for the future but we will give plenty of notice when it happens.
News from the Network Members

◆ Würzburg-Nagasaki Symposium on 29th October 2021
  - by Prof. Andreas Buck and Dr Tanja Weber (UKW, Germany)

Four times a year the Würzburg-Nagasaki Symposium organised by the medical faculties of the University of Würzburg and Nagasaki takes place on different topics.

On October 29th the topic was „Radiation and Health“. Prof. Michael Lassmann and Dr. Uta Eberlein (Department of Nuclear Medicine, University of Würzburg) were invited to give talks on their research topics. Prof Lassmann presented in his talk „Radionuclide therapy in nuclear medicine – developments and challenges“, that there are several challenges for radionuclide therapies. Efforts are needed for improving quantitative imaging (including standardization and/or accreditation of centres) for a balanced approach to achieve sufficient accuracy versus staff efforts for dosimetry and for increased research opportunities for improved characterization of treatment effects (including dosimetry, pharmacokinetic modelling and radiobiology). In addition, dosimetry should be considered an essential part in early stages of early phase clinical trials for further improving safety and efficacy of new therapies.

Dr. Eberlein talked about „Biodosimetry in Nuclear Medicine“ and concluded that their research can provide evidence that the biomarkers γ-H2AX+53BP1 in conjunction with internal dosimetry quantify ex vivo and in vivo the induction of double strand breaks and repair by radionuclides (beta and alpha emitters) in peripheral blood mononuclear cells, even at very low absorbed doses to the blood.

The speakers from Japan concentrated their talks on health risks after the nuclear disaster in Fukushima. The online-symposium was well received and ended in a very lively discussion.

During the European radiation protection week at the end of November, Dr. Eberlein and co-authors were awarded with the EURAMED Award on the presented abstract “Differences of Ex Vivo and In Vivo DSB Repair Capacity in PBMCs of Patients before and during Radioiodine Therapy. This research was performed within a work package of the EU-funded project MEDIRAD (http://www.medirad-project.eu/). This work package deals with the impact of low dose radiation exposure during radioiodine therapy of thyroid cancer.

◆ Biodosimetry performed for a radiological accident in Spain
  - by Prof. Joan Francesc Barquinero
  Universitat Autònoma de Barcelona

An accident involving accidental over-exposure of a worker using an industrial radiography camera containing an Ir-192 source of 2.21 TBq activity. Currently, the incident is under evaluation by the Industrial Radioactive Facilities Department from the Spanish Nuclear Safety Council.

On the 27th of September the biological dosimetry laboratory from the Autonomous University of Barcelona received a blood sample from an industrial radiography worker who received an accidental over-exposure assessed by a TLD dosimeter at 3000 mSv. The cytogenetic evaluation done in 500 solid stained metaphases revealed the presence of one tricentric chromosome, 24 dicentrics chromosomes and 4 ring chromosomes. The cell distribution of dicentrics was overdispersed, indicating a non-homogeneous exposure. By means of biological dosimetry, the estimated whole-body dose was 0.90 Gy (0.73-1.09); and considering the non-homogeneous exposure, it was estimated an exposure of 3.8 Gy affecting a 5% of the body and an exposure of 0.77Gy affecting the rest of the body. All calculations were done using the free software BiodoseTools.
News from the Network Members

◆ The 5th QST International Symposium on Radiation Emergency Monitoring and Medicine in Nuclear Disaster
- by Hideo Tatsuzaki, Osamu Kurihara, and Shunichi Yamashita, National Institute of Radiological Sciences (NIRS), Quantum Life and Medical Science Directorate, National Institutes for Quantum Science and Technology (QST)*, Japan

The NIRS-QST organized “The 5th QST International Symposium on Radiation Emergency Monitoring and Medicine in Nuclear Disaster ---Current Status of Each Country and Future Prospects---” from 21-22 September 2021. It was mainly organized as a web conference and broadcasted widely via internet to the world. Total of over 200 experts attended to the symposium including over 90 foreigners, mainly from the Asian countries. Most of them were professionals and specialists who was or will be involved in EPR for Radiological or Nuclear accidents. They were composed from medical doctors, health-care providers, radiation protection experts, and governmental officers. Most of the oversea lecturers gave their slide presentation as pre-recorded videos. Dr. Zhanat Carr from WHO-REMPAN and Dr. Kayo Togawa from IARC, WHO, Dr Carol Iddins from REAC/TS (USA) gave their comprehensive lectures among many international experts. The REAC/TS Director Dr. Carol Iddins was an invited speaker at the 5th QST International Symposium, presenting on “Radiation Emergency Preparedness for Radiological/Nuclear Incidents: Current Status and Update for the United States”.

We could share our experience and lessons learned from the past nuclear accidents, especially the 10th anniversary topics from the Fukushima accident. Furthermore, the current status and problem-solving prospect in each county were outlined and extensively discussed. The NIRS-QST will help to strengthen the system for Radiation Emergency Medicine in Japan as a core center, with the recently established facility, which will be a base for promotion of the development of new techniques for dose assessment and experts in this field and harmonize the different scales of measurement.

* The name of the institute was changed from “National Institutes for Quantum and Radiological Science and Technology (QST)” after the symposium from October 2021.

Scientific events

◆ IASC High Level Event on Mental Health and Psychosocial Support

On 08 September 2021, the High Level Event on Mental Health and Psychosocial Support hosted by the Executive Office of the United Nations Secretary-General and the IASC Reference Group on Mental Health and Psychosocial Support chaired by the WHO. The event’s recording is available here.

◆ The Future of Radiological Protection

ICRP Digital Workshop took place on 19-20th October 2021 Recorded sessions and on-demand presentations available here.

◆ The 23rd Fukushima Dialogue took place on 28 Nov 2021

In cooperation with Japan Health Physics Society (JHPS), The Society for Risk Analysis (SRA), Japan, French Nuclear Protection Evaluation Centre (CEPN) and French Institute for Radiation Protection (IRSN). The program is available here.

Organised by:
NPOFukushima Dialogue
http://fukushima-dialogue.jp
News from the Network Members

◆ 10th Anniversary Events of the Institute of Radiation Emergency Medicine (IREM) and Commemorative On-Demand Webinar – by Prof. Shinji Tokonami Institute of Radiation Emergency Medicine, Hirosaki University, Japan

Institute of Radiation Emergency Medicine (IREM), Hirosaki University, JAPAN celebrated its 10th-anniversary last year since it was established in October 2010. Commemorative Events of the 10th Anniversary of IREM were held on September 16th and 17th, 2021. IREM has been conducting risk communication in addition to the initial response to the accident at the Fukushima Daiichi Nuclear Power Plant and research. In Aomori Prefecture, where the nuclear power plant is located, IREM plays an important role in assessing exposure doses in emergency situations. At the ceremony, Professor Shinji Tokonami who is the director of the IREM stated that the IREM will continue to contribute to the development of education and research and work on solving various problems in the Aomori region and worldwide. Therefore, our key research focuses on research in the environmental dynamics of radionuclides, estimation of external and internal radiation doses, development of new analysis methods for radionuclides, chromosome analysis for estimation of radiation dose, elucidation of the genetic mechanism in carcinogenesis, development of radiation-protective agents and promoting collaborative research and human resource development.

In addition, we welcomed Prof. Makoto Akashi from the University of Tokyo Health Sciences, and Prof. Em. James McLaughlin from University College Dublin, Ireland, and Research Professor of IREM, who gave the virtual Lectures via Zoom. Their presentation topics were about “Expectations for the IREM, Hirosaki University: A New Policy” and “Why do the public and radiation experts have quite different perceptions of Radiation Risks”, respectively. The commemorative lecture by Prof. McLaughlin is now available on-demand until January 26th, 2022, as part of the International Radiation Science Collaboration Center Seminar organized by IREM.

◆ After the Fukushima Daiichi Nuclear Accident: Dealing with the Unpredictable

- a workshop organized by IRSN in November 2021 to commemorate the 10th anniversary of Fukushima accident. Further information is available here.

◆ The 6th NERIS Workshop

took place online from 20 to 22 October 2021, the programme and abstracts can be downloaded here.

◆ 5th European Radiation Protection Week (ERPW)

Was held on 22-24 Nov 2021 in Vienna, Austria. It was hosted by EURAMED alliance and focused this time on radiation protection of medical uses of radiation. More information is available here.
News from the Network Members: Biodosimetry

◆ UKHSA Biodosimetry Specialists share their thoughts on future directions – by Dr. Liz Ainsbury UKHAS, United Kingdom

The UKHSA (formerly PHE, UK) WHO Collaborating Center and a reference laboratory of the WHO BioDoseNet, have recently published a brief, invited, review looking at the state of the art in terms of use of biomarkers for biodosimetry purposes, together with consideration of some of the potential future directions. These include improved characterisation of dose and exposure scenarios with more specific and sensitive biomarkers (not least those based on transcriptional markers, and novel portable devices to improve rapid response intervention); use of ‘omics biomarkers and associated and new technologies, e.g. machine learning and AI, in support of development of molecular epidemiology studies; better protection of workers and patients exposed to radiation in clinical settings, using biomarkers to support tailored uses of radiation and development of personalised pharmacological protection approaches, and developments across the board facilitating safer space travel as this becomes more and more of a potential reality for the general population.

https://doi.org/10.1080/09553002.2021.1980629

◆ Radiation exposure combined with other hazards

The risks from combined ionising radiation and chemical exposures have long been a concern but to date little work has looked to address the research questions in any detail. Colleagues from UKHSA (formerly PHE) Centre for Radiation, Chemical and Environmental Hazards, the Department of Biology, School of Sciences and Humanities, Nazarbayev University, Kazakhstan, and the Department of Radiotherapy and Radiation Oncology, University Medical Center Hamburg- Eppendorf have recently published in Nature/Scientific Reports the results of some interesting work looking at combined radiation and chemical exposures. The team focused on a variety of endpoints related to DNA, chromosomal and other functional damage in human lymphoblastoid cells, up to 6 months post exposure to 4-nitroquinoline N-oxide (4NQO), N-nitroso-Nmethylurea (MNU) and hydrogen peroxide (H2O2, with or without an additional 1 Gy x-rays exposure. The authors found chronic chemical exposures did not significantly affect the yield of x-ray induced dicentrics, for example, and while some chemicals induced fragments and micronuclei, the effects were consistent with an additive model. Overall in this study, the cellular response to ionising radiation was not significantly altered by low level short or long term chemical exposure.

For further questions, please contact otilia.nuta@nu.edu.kz.

◆ News from the Biological Dosimetry Laboratory of the Radiological Protection Service at La Fe University and Polytechnic Hospital in Valencia - By Dra. Alegria Montoro – Hospital Universitario Politécnico La Fe /Valencia, Spain

The biological dosimetry laboratory of the Radiological Protection Service received support of the Valencian Health Council for the automation of the biodosimetry lab (Harvester, auto-spreader, slide aging system, Mseach and dicentric scoring) and because the first biodosimetry lab in Spain with such automated equipment. In relation to medical preparedness for radiation emergencies the specialists at Hospital La Fe translated to Spanish the REAC/TS Guide: MEDICAL ASPECTS OF RADIOLOGICAL INCIDENTS.

Regarding medical countermeasures, our laboratory collaborates with the University of Valencia and jointly prepared a review in the journal Biomedicines entitled Radioprotection and Radiomitigation: From the Bench to Clinical Practice. In addition, Drs. Obrador and Montoro are guest co-editors for the special issue of Antioxidants journal (submissions deadline July 2022). In 2021 the team has presented a European Patent: EP21382036 (entitled “Compositions and methods for preventing, ameliorating or reducing radiation-induced diseases”). More information can be found at our Research Institute IISLAFE website, where you can find a summary in English of our innovation. Last August, the team has been granted a Project by the Valencian Innovation Agency (AVI) (2021-2023): 4innva1 / 2021/22: “Development of a protective cream against radiodermatitis caused by radiotherapy”.

Photo: Dr Alegria Montero Pastor
Training and Exercises

◆ Radiation Injury Treatment Network® (RITN) Update
- by Jen (Venero) Aldrich, Radiation Injury Treatment Network (RITN) USA

The Radiation Injury Treatment Network® (RITN) is a national network of medical centers with expertise in the management of bone marrow failure and works with partners from other specialties to assist with managing acute radiation syndrome (ARS) and its health-related consequences.

Our COVID response continues to prevent full engagement in RITN activities.

2021 Highlights:
◆ Just-In-Time Training: Short 6–8-minute videos for medical providers
  - What to Expect...Does the Patient Have ARS?
  - Treating Radiation Victims...Am I Safe?
  - Preparedness Steps...Identifying Your Resources
  - RITN: YouTube Channel (https://www.youtube.com/channel/UCkd45X1DIPqeRr-u5lph6Og) and website (https://ritn.net/training/)

◆ Radiation exercise toolkit:
  o Created to help medical centres conduct a radiation-focused exercise as the FY22 Department of Health and Human Services-Assistant Secretary for Preparedness and Response's Operational Intent is radiation requiring healthcare coalitions to develop their radiation annexes.
  o RITN Exercise webpage (https://ritn.net/exercises/hccfunctional/)

◆ Educational webinars:
  o Chronicles of the Chernobyl Disaster AND Chernobyl: 35 Years Later (Dr. Alla Shapiro)
  o Black Swan Incidents Happen: The Power of Preparedness & Partnership for the Fukushima March 2011 Response (Dr. C. Norman Coleman)
  o COVID-19 Cohort Management Program (CCMP): An Adaptable Model for Outpatient Surge Management (group from Memorial Sloan Kettering)

◆ CDC morbidity tool project:
  o Developed & piloted test tools and “proof-of-concept” processes that state and local public health agencies could use to conduct hospital morbidity surveillance following IND detonation.
  o Developed After-Action Report (AAR) of the tool use by 72 hospitals to validate workability, identified modifications, implemented 73 modifications, and submitted AAR with updated tool to CDC

◆ Fort Thunder Exercise
By Carol Iddins. REAC/TS (USA)

REAC/TS participated in the Fort Thunder exercise in August 2021. Fort Thunder is part of the Silent Thunder exercise series designed to foster collaboration among representatives from local, state, and federal government agencies/organizations with a shared stake in mitigating the effects of a radiological terrorism incident. The Silent Thunder exercise series provides a no-fault, site-specific tabletop exercise, where representatives from all responding and stakeholder organizations can exercise their crisis management and consequence management capabilities against a fictional WMD terrorism incident. This exercise, which had 92 participants, was hosted by Fort Sanders Regional Medical Center, the Federal Bureau of Investigation (FBI), and the National Nuclear Security Administration (NNSA).

◆ US CDC Held Radiation Emergency Preparedness Month in September 2021

Check out the provided information and training possibilities on their Website and on YouTube concerning the case of a radiation emergency.

CDC on-line training courses:
✓ Radiation Emergency Training and Education (HHS/CDC)
✓ Radiological Contamination and Exposure
✓ Types of Radiation
✓ Radiation Basics Made Simple
✓ 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
Training and Exercises

◆ REAC/TS MicroREM Courses

REAC/TS has hosted three MicroREM Courses since July 2021. This 12-hour virtual course is an abridged version of REAC/TS’ renowned Radiation Emergency Medicine (REM) class and focuses on the fundamentals of medical care and management of patients involved in radiological/nuclear incidents. These courses educated over 200 participants from around the world representing a variety of medical disciplines, health physics personnel, emergency managers/planners, and researchers from various organizations including governmental agencies, industry, universities, prehospital and hospital agencies and facilities. Future courses may be located in the Continuing Medical Education Section of the REAC/TS website:


◆ Overlapping Science in Radiation and Sulfur Mustard Exposures of Skin and Lung: Consideration of Models, Mechanisms, Organ Systems and Medical Countermeasures - January 13 - 14, 2022 - by Dr Andrea Dicarlo-Cohen (NIAID/NIH)

Radiation and Nuclear Countermeasures Program (RNCP), National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH) and Chemical Countermeasures Research Program (CCRP), in coordination with the BARDA Radiological and Nuclear Countermeasures Branch and Chemical Countermeasures Program, co-hosted a Trans-Agency workshop this month. Speakers presented on animal model development and/or medical countermeasures testing of approaches to address either sulfur mustard- or radiation-induced injuries to the skin and lungs. There was also organized a special session on regulatory considerations. The organizers plan to follow this meeting by publishing the presentations and other manuscripts in a special issue featuring both the Chemical and Radiological/Nuclear aspects in the journal of Disaster Medicine and Public Health Preparedness. The goals of this meeting are to examine and compare pathologies in pulmonary and cutaneous injuries following sulfur mustard or radiological/nuclear insult, discuss animal models and medical countermeasures currently used in the sulfur mustard or radiological/nuclear space; and identify existing gaps, challenges, and needs for translational and regulatory applications in both mission spaces.

◆ US National Academies of Sciences (NAS) Nuclear and Radiation Studies Board workshops held in 2021:

November 16 - 17:
Public Meeting of the Committee on Developing a Long-Term Strategy for Low-Dose Radiation Research in the United States (video)

December 14:
The Sixth Gilbert W. Beebe Webinar: Tracking Radiation Doses from Medical Diagnostic Procedures. Video recording is available here.

◆ International Advanced Training Course on Stakeholder Engagement for Recovery after Nuclear Disasters was jointly organized in October 2021 by two WHO Collaborating Centers in Japan: Nagasaki University and Fukushima Medical University.

◆ WHO on-line training courses:

Open WHO platform offers hundreds of on line training programs on various topics including those on preparedness, response, risk assessment and clinical management of health emergencies

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**New Publications**

◆ **Radiation Response Briefing Manual: A Guide for Key Leaders and Public Health Decision Makers** - a recent publication by US CDC colleagues that provides a just-in-time overview of radiation hazards and response considerations for radiation emergencies. It is intended to give leaders and other staff a working knowledge of radiation emergency response, so that they can ask the right questions, work effectively with partner agencies, and make informed decisions.

◆ **WHO Collaborating Center “Urals Research Center for Radiation Medicine of the FMBA of Russia” – by Dr Alexander Akleyev (URCRM, Chelyabinsk, the Russian Federation)**

A series of articles on the effects of chronic radiation exposure in residents of the Urals region of Russia was prepared by specialists of the WHO Collaborating Center “Urals Research Center for Radiation Medicine of the FMBA of Russia”, Chelyabinsk, Russia. The *Journal of Radiological Protection* 41 (No. 4) published an article by Prof. A.V Akleyev "Specific features of medical care provision to the population of the Techa riverside settlements". The article focuses on provision of medical care to the population of the Techa riverside settlements affected by long-term radiation exposure. The article "Single nucleotide polymorphisms as biomarkers of long-term radiation-induced changes in systemic immunity" by Dr. A.A. Akleyev et al. was published in the journal *Pathogenesis (Elsevier)*, Vol. 61, No 4, 2021. The article shows that single nucleotide polymorphisms of genes involved in the immune system can be used as biomarkers of radiation-induced immunity changes and predictors of malignant neoplasms in the long-term period after radiation exposure. Two new articles "Approaches to the cytogenetic assessment of the dose due to radiation exposure of the gut associated lymphoid tissue" and "Estimation of lymphocyte radiation doses after the ingestion of radionuclides of different tropicity" by E.I. Tolstykh and M.O. Degteva were published in the journals *Radiation Biology. Radioecology and Radiation Hygiene*, respectively.

◆ **REAC/TS new radiological emergency response tools**

REAC/TS has recently created several new tools to aid in radiological emergency response, including graphics to assist with patient radiological surveys and radioactive contamination survey instrumentation. All of REAC/TS graphic tools are free for download on their website: https://orise.orau.gov/resources/reacts/references.html


The new publication was launched in September 2021. Earlier this month an event was held by IFRC including High Level Endorsement of the new resource by key stakeholders, as well as a 60-minute interactive session on Practical Application of the framework facilitated by members of the IASC MHPSS Reference Group. The publication page: IASC Common Monitoring and Evaluation Framework for MHPSS in Emergency Settings: Version 2.0

◆ **NIAID-sponsored special issue in Radiation Research (196(5)) - a series of papers focused on radiation biodosimetry.**

Congrats to Dr Satyamitra for leading the effort to put together an impressive compilation, including a manuscript written with colleagues at FDA and BARDA (Challenges and Strategies in the Development of Radiation Biodosimetry Tests for Patient Management - M.Satyamitra, FE.Reyes Turcu, N.Pantoja-Galicia, L. Wathen (Radiation Research Nov 2021 Vol. 196, No. 5: 455-467)).
New Publications

◆ **Americium Chelation Exposure with Successful Chelation Therapy**

REAC/TS’ colleagues recently co-authored a manuscript entitled "Americium Chelation Exposure with Successful Chelation Therapy" that has been published by Disaster Medicine and Public Health Preparedness. This manuscript evolved out of an occupational inhalation of americium-241, treated with both effective external decontamination and the use of diethylenetriamine pentaacetate to promote decorporation. This experience is significant because of the potential for americium or similar radionuclides to be used in dirty-bomb or other radiological dispersion devices, and helps educate medical providers regarding best practices when caring for those who are involved in events of this nature.


◆ **What if a major radiation incident happened during a pandemic?**

This is a question radiation emergency responders across the globe have been asking ourselves over the past two years. In a short paper recently published in the International Journal of Radiation Biology, some active members representing the International Association for Biological and EPR Radiation Dosimetry ([https://iaberd.org/](https://iaberd.org/)) consider in particular the impact on the biososimetric response if a major radiation emergency happened during a pandemic.

◆ **“Exploring National Nursing Readiness for a Radiological or Nuclear Incident: A Cross-Sectional Study”**

A manuscript authored by REAC/TS Nurse/Paramedic Angie Bowen, Director Dr. Carol Iddins, and Health Physicist Dr. Jason Davis that was published in the September 2020 edition of the Journal of Emergency Nursing (JEN) has been selected for the 2021 International Academy of Nursing Editors (INANE) Virtual Journal. Each member journal selects one paper from the previous year to showcase and share an exemplary paper with other journal editors in the field. The article, “Exploring National Nursing Readiness for a Radiological or Nuclear Incident: A Cross-Sectional Study”, assessed nurses’ knowledge and skill in emergency radiological or nuclear response and determined their willingness to use mobile technology for education and training in response to a large-scale event.

Coming... Going...

◆ Retirement of Dr Robert C. (Bob) Whitcomb, Chief of the Radiation Studies Section, National Center for Environmental Health, CDC USA

Dr. Robert C. Whitcomb, retired on December 31, 2021, with more than 28 years of service with CDC. As section chief, and formerly branch chief of Radiation Studies at CDC, Bob served as a leader and senior expert on radiation protection for public health. He is recognized as a national and international authority on radiological public health issues and risk assessment. Bob played an instrumental role in the nation’s radiation emergency preparedness efforts, helping to make the public health community aware of this significant preparedness need and leading efforts to build capacity at the local, state, tribal, territorial, and national levels. He began his career at CDC in the Radiation Studies Branch in the Division of Environmental Hazards and Health Effects, NCEH, in 1993 as a physical scientist. He contributed scientific expertise to the agency’s efforts to assess radiation doses to numerous Cold War weapons production sites in the U.S., as well as population effects of nuclear testing in the Marshall Islands in the 1940s and 1950s. In 2011, Bob served as chief science advisor to the CDC director during the Fukushima Daiichi nuclear emergency (Japan), providing expertise and scientific direction to the agency’s public health response. More recently, Bob provided co-leadership for the CDC Nuclear/Radiological Emergency Training and Exercise Program sponsored by the Center for Preparedness and Response. This program has made major strides in developing the Nuclear/Radiological Incident Annex to the CDC All Hazards Emergency Response Plan and developing a rad-savvy workforce that can activate quickly should a radiation emergency occur in our country. Bob also participated in national-level planning and exercising for a nuclear or radiological incident, participating with other federal agencies and White House personnel. Bob’s plans include spending more time with family and enjoying outdoor sporting interests. He also hopes to continue his contributions to radiation protection science and practice, but at a more relaxed pace.

◆ Retirement of Dr Alicja Jaworska from DSA – former Norwegian Radiation Protection Authority (NRPA)

Alicja Jaworska is retiring on 31 Jan. 2022 from DSA, where she has been responsible for matters pertaining to public health and medical response to radiation emergencies. In this capacity Alicja was closely engaged in numerous European collaborative projects. On behalf of WHO and REMPAN family, we would to thank her for her outstanding contribution towards global public health and medical preparedness and response to radiation emergencies. We wish Alicja all the best in her new chapter of life, which she will be enjoying with her family and friends. We will miss her presence within REMPAN family and hope that our paths will cross again, we hope to stay in contact!

◆ Dr. Jong-Hoon Park Newly Appointed as President of KIRAMS – Seoul, Korea

Since December 2021, Dr. Jong-Hoon Park has newly taken the post of the President of the Korea Institute of Radiological and Medical Sciences (KIRAMS). As a medical doctor, Dr. Park has expertise both in orthopedics and biochemistry. Prior to joining KIRAMS, he served as the President of the Korea University Anam Hospital. KIRAMS was re-designated as the WHO Collaborating Centre for Radiation Emergency Preparedness and Response, effective till August 2025.

◆ We welcome also a new REMPAN focal point at the Swiss Federal Office of Public Health – Dr. Nina Mosimann - Scientific Associate at the Radiation Protection Department / Radiological Risks Section of the Swiss Federal Office of Public Health (SFOPH)

OBITUARIES

◆ Prof. Volodymyr Bebeshko (1937 -2021)

Prof. Bebeshko, a Corresponding Member of the National Academy of Medical Sciences (NMAS) of Ukraine and former Head of the WHO Collaborating Centre, passed away on 05 November 2021, at the age of 84 in Kiev, Ukraine. Within the National Research Centre for Radiation Medicine (NRCRM), he was a former Director of the Institute of Clinical Radiology (ICR) in 1986 – 2011 and a Director General of NRCRM in 2000 - 2011, while heading the Department of Haematology and Transplantology at the ICR. Prof Bebeshko held the titles of a Honoured Leader of Science and Technology of Ukraine in 2006 and a Laureate of Science and Technology Awards of Ukraine in 2007. In addition, he received a number of national and international awards, including the national Order of Merit (III class); an honourable diploma of the Verkhovna Rada of Ukraine, and others. Prof. Bebeshko devoted his entire life to medical science. As a leading scientist in clinical and experimental haematology in Ukraine, he initiated the development of the national paediatric haematology service in Ukraine. He made a significant contribution to the understanding of the hematopoietic syndrome in patients with malignant hematoblastosis and developed new diagnostic and treatment approaches for such disorders, including transplantation of autologous and allogeneic stem cells of peripheral blood and bone marrow. Prof. Bebeshko lead the scientific research program on long-term health effects of Chernobyl and shaped the preventive approach to follow-up in order to minimize the stochastic effects of radiation exposure. He authored more than 500 scientific publications. The memory of Volodymyr Bebeshko will forever remain in our hearts. We express our sincere condolences to his family, friends and colleagues.

◆ Rest in Peace Lesley...

Ms. Lesley Prosser, former Head of the WHO Collaborating Centre in UK and former Head of Radiation Hazards and Emergencies Department, CRCE, Public Health England has passed away on Sept 10, 2021 at the age of only 55. She is survived by her husband and two daughters. We will never forget Lesley’s kind and smiley presence, her brilliant personality, her being always ready to help to offer her knowledge and expertise when needed. She was a beautiful human being – inside and outside...

We truly enjoyed working with Lesley throughout the years in the area related to radiation emergencies and we have missed her tremendously when she decided to step down and leave her post because of her health reasons. In the moments like this, we realize again how fragile and how short is human life. We might never forget this and make sure that we make time to enjoy life, to take care of our loved ones and let them know that we love them. Tomorrow may be too late.
Upcoming Events

◆ WHO Collaborating Centers Re-designations:
  - Istituto Superiore di Sanità, Italy – January 2022
  - Swiss Federal Office of Public Health – March 2022
  - RERF, Japan – March 2022
  - Fukushima Medical University – May 2022
  - IRSN, France – July 2022

◆ Radiation and Nuclear Countermeasures Program (NIAID/NIH)
  - Sex Differences in Radiation Research (April 26-27, 2022)
    The goals of this workshop are to examine sex differences within radiation animal models and understand how these may affect radiation medical countermeasure (MCM) development; explore sex differences in biodosimetry and/or biomarkers used to assess acute radiation syndrome (ARS), delayed effects of acute radiation exposure (DEARE), and/or predict major organ morbidities; and learn about the challenges in medical research lacking representation from both sexes
  - Radiation-Induced Multi-Organ Injury (June 7-8, 2022).
    The objectives of this workshop are to explore radiation-induced multi-organ injury, in particular the connections and underlying mechanisms driving injury to affected organs, and to explore how various treatments can ameliorate this damage.

◆ The Radiation Injury Treatment Network® (RITN) - a national network of medical centers with expertise in the management of bone marrow failure and works with partners from other specialties to assist with managing acute radiation syndrome (ARS) and its health-related consequences.
  - The 8th Biennial RITN Workshop Past Informing the Present Past Improving the Plan for a Rad/Nuc Incident (4-5 August 2022), Alexandria, VA, USA
  - Abstracts for oral presentation – accepted early 2022
  - See www.ritn.net for updates / announcements

◆ EPR BioDose-2022 Conference postponed
to 27-31 March 2022 - Okayama, Japan

◆ 6th European Congress on Radiation Protection
  30 May to 03 June – 2022, Budapest

◆ ICRER 2022 - 5th International Conference on Radioecology & Environmental Radioactivity
  4-9 Sept. 2022 – Oslo, Norway

◆ ICRP 2021 POSTPONED
6th International Symposium on the System of Radiological Protection
7-10 Nov 2022 – Vancouver, Canada