EDITORIAL

Dear Colleagues,

It is my pleasure to introduce the 22<sup>nd</sup> issue of the WHO REMPAN e-Newsletter but first of all I would like to wish you all a very happy New Year! Let us hope that 2021 will bring positive changes and the return to normality – as much as it may be possible although normal life as we know it will probably never be the same. Many of us have suffered this past year having family members falling ill or even loosing them to COVID19, or both, as in case of my own relatives in Kazakhstan. I would like to express my deepest condolences to everyone who lost love ones to the pandemic.

Last year has taught humankind some invaluable lessons and touched our lives on many levels. “If there is one lesson to be learned from #COVID19, it is that humanity and the planet are strongly interconnected systems, encompassing biosphere, society, politics & economy.” (Dr David Nabarro, 4SD). The full extent and dimensions of the impact of the pandemic are still to be comprehended. One of the pandemic aspects which have come forward is its mental health and psychosocial impact. For each of us, working from home for months from the start of the pandemic has been challenging. Fortunately, there has been also a silver lining: lockdown helped us to become more tolerant towards each other, made us more patient parents and partners, better cooks and hopefully brought us closer. Zoom has become an integral part of our lives making so many things and places more accessible: from global conferences to virtual visits of the best museums of the world, and zoom birthday parties. “Zoom-fatigue” is a new term we learnt in 2021.

On the bright side, we became more conscious of our life style, nutrition and physical activity levels, find ourselves joining yoga, dance, music classes, learning new skills, or doing something we’ve always wanted to do and didn’t have time (did you also decluttered your attic or basement?) It was an interesting year and despite all the challenges we still managed to develop, produce, organize and deliver!

Entering 2021 at the time of COVID19 vaccine finally becoming available, we are hopeful that this will become a game-changer. We are looking forward to a different year – an exciting and fulfilling year rich with new projects, ideas, encounters. We are excited to prepare our first ever virtual REMPAN meeting on March 22-24, 2021.

I never can thank you enough for your continuing support and cooperation, your understanding and friendship. It fills me with hope and gratitude.

Zhanat CARR
**News from WHO Secretariat**

◆ On Jan 05, WHO Director General Dr Tedros delivered a speech where he spoke of Organization’s work on the pandemic that still remains a major public health crisis.

“We’re in a race to save lives, livelihoods and end this pandemic” - he said. WHO is assisting countries trying to prevent infections, bring cases down, protect health systems and safe lives while rolling out highly effective and safe vaccines to high-risk populations. In addition to fighting the COVID-19 pandemic and numerous other diseases outbreaks across the world, picking up and analysing hundreds of potential signals every week, WHO’s work goes beyond emergencies aiming at improving human health in all its aspects from birth to old age, accelerating science, providing solutions to challenges on the ground and building global solidarity. Dr Tedros' statement from the COVID-19 media briefing on 05 January can be seen here.

◆ In his address to WHO staff at the end of 2020, Dr Tedros said:

During this most challenging of years, the light that has guided the way for WHO – and humanity – has been that which has shone ever so brightly from your commitment, kindness and collaboration to keep the world safe, serve the vulnerable and promote healthy lives.

The COVID-19 pandemic has challenged us as in so many ways, as individuals, as members of families and communities, and as representatives of the World Health Organization. All of us have been acutely affected personally and professionally. The pandemic has brought suffering to every corner of the planet, including to the WHO family. The mental and physical toll of COVID-19 has been and remains very real. The pandemic has tested and challenged our Organization as never before. I am immensely proud of your leadership and contributions to the global COVID-19 response, and to the fact that existing programmes continued going from strength to strength despite the massive disruption caused by the pandemic.

The pandemic brought into sharp focus the importance of our mission and our programmes, highlighting that healthier populations, universal health coverage and global health security are deeply intertwined.

But our work in fighting the pandemic is not complete. Success will be measured by, among other things, whether safe and effective vaccines are shared equitably with all people at risk. This must remain our focus as we enter the New Year. In 2021, we will build on the many advances we have made, driven by the goals of keeping people safe, serving the vulnerable and promoting healthier lives.

◆

**Dept. of Communications (DCO, WHO)**

◆ WHO issued its first emergency use validation for a COVID-19 vaccine 31 Dec 2020, the Pfizer/BioNTech COVID-19 mRNA vaccine became the first to receive emergency validation from WHO since the outbreak began a year ago.

The WHO’s Emergency Use Listing (EUL) opens the door for countries to expedite their own regulatory approval processes to import and administer the vaccine. It also enables UNICEF and the Pan-American Health Organization to procure the vaccine for distribution to countries in need.

In the meantime, we need to remember that this pandemic still has a long way to run: Intense transmission is ongoing and is putting enormous pressure on hospitals, intensive care units and health workers. Decisions made by leaders and citizens in the coming weeks will determine when the acute phase of the pandemic will end.

Vaccines will be a critical new tool in the battle against COVID-19: It is encouraging to see so many vaccines in development. Working as quickly as they can, scientists from across the world are collaborating and innovating to bring us tests, treatments and vaccines that will collectively save lives and end this pandemic.

Safe and effective vaccines will be a gamechanger: but for the foreseeable future we must continue wearing masks, physically distance and avoid crowds. Being vaccinated doesn't mean that we can throw caution to the wind and put ourselves and others at risk, particularly because it is still not clear the degree to which the vaccines can protect not only against disease but also against infection and transmission. Click here to read more about the Comirnaty COVID-19 mRNA vaccine for emergency use.
News from REMPAN Secretariat

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

On 27 Nov, 2020 WHO Launched the new Framework for Mental Health and Psychosocial Support (MHPSS) in Radiological and Nuclear Emergencies

This benchmark publication is building on the experience and lessons of Chernobyl and Fukushima nuclear accidents and uses existing global standards, guidance and approaches for managing MHPSS in emergencies and disasters. For the first time ever it brings together two fields: mental health and radiation protection. This framework is a result of several years of discussions, consultatations, collaboration and contributions from many of REMPAN experts, WHO Collaborating Centers and external partners (notably, NEA/OECD and IFRC) and of an inter-departmental cooperation within WHO itself.

MHPSS Framework download page

The launch via Zoom with some 200 participants registered. The webinar panelists list included: - Ms. Jacqueline Garnier-Laplace – Division of Radiological protection and human aspects of nuclear safety, Nuclear Energy Agency (NEA/OECD, France); - Prof. Robin Goodwin – Department of Psychology, Warwick University (UK); - Dr. Sara Hedrenius - Senior Advisor, Mental health and Psychosocial Support, Swedish Red CrossM - Prof. Masaharu Maeda – Department of Disaster Psychiatry, Fukushima Medical University (Japan); - Mr. Matthias Zaehringer – Division Emergency Preparedness & Response, Federal Office of Radiation Protection (BfS), Germany. Webinar Launch video recording and presentations can be accessed here.

◆ In response to MS requests, WHO developed a guidance on chest imaging for COVID-19 including implementation considerations, research gaps, infection prevention and control, radiation protection aspects and the following information products:

- Rapid advice guide on chest imaging in COVID-19
- Technical specifications for imaging equipment.
- Training package (e-learning) with modules on imaging guidelines, imaging findings and safety procedures.
- Chest imaging section in the definition of probable case.
- Manuscripts in peer-review literature

Expert group is currently reviewing new evidence with the purpose of the near future updates.

Links to download:
- Use of chest imaging in COVID-19: a rapid advice guide
- Technical specifications for imaging devices for COVID-19 diagnosis
From 1 to 18 December, the “International Conference on Recovery After Nuclear Accidents: Radiological Protection Lessons from Fukushima and Beyond” took place virtually. The conference was organised by the International Commission on Radiological Protection (ICRP), hosted by Japan Atomic Energy Agency (JAEA), and in association with several Japanese, International (including the World Health Organization), and other organisations. The objective was to share experiences and lessons related to radiological protection aspects of recovery from the Fukushima Daiichi nuclear accident, the Chernobyl accident, and other events to improve international understanding of the current state of recovery in Japan, consider strategies that may accelerate recovery, and improve preparedness for recovery from possible future major nuclear accidents. From 1 to 4 December 2020, attendees livestreamed presentations and panel discussions, and on-demand content including video presentations, posters, exhibits, and virtual tours. Q&A was not only possible during livestreams, but like all content, was available for full participation until 18 December 2020. Thanks to the organisations who supported the conference, registration was free. With over 2,500 delegates from 100+ countries around the world, this virtual experience produced unprecedented levels of global participation for an ICRP related event. For those who were unable to attend before 18 December, the event website will still be accessible for the foreseeable future with most of the content available for viewing only. Those interested in seeing this content are encouraged to do so by going to the conference website (www.icrp-recovery.org) and registering. As an international charity, ICRP plans to continue producing user-friendly experiences at little-to-no cost for interested parties.


For more information on ICRP, please visit ICRP Website.
Scientific Events

◆ International conference on radiation safety, Moscow, Russia: During the celebration of the 75th anniversary of Russia’s nuclear industry

By Dr. Andrey Bushmanov - Director of Moscow WHO Collaborating Centre.

On the 8-9 Oct 2020 an online conference, titled «Nuclear industry: radiation safety and health of workers» was held in parallel with the celebrations for the 75th anniversary since inception of Russia’s nuclear industry at the WHO Moscow-based CC within the framework of SRC – FMBC.

Issues of emergency preparedness and technologies for providing medical care in the event of a radiation accident, issues of emergency dosimetry and dosimetric control at Russian nuclear power facilities were discussed during the conference. The heads of Russian nuclear industry, the Ministry of Health, the FMBA of Russia, WHO collaborating centers from Würzburg (Germany), Chelyabinsk, Obninsk, St. Petersburg as well as several scientific and medical organizations all made presentations and gave insights on the topic.

Melita Vujnovic, a representative of the World Health Organization to the Russian Federation, made an official report about the role of the WHO collaborating centers. The conference was attended by Andreas Buck (Germany), Hiroshi Yasuda (Japan), Malgorzata K. Sneve (Norway), Miroslav Pinak (IAEA), Abel Julio Gonzalez (Argentina), Kasim Zhumadilov (Republic of Kazakhstan) within the framework of the international partnership.

The challenges posed by the current viral pandemic to the optimization of radiation protection and emergency response procedures were the subject of intense scrutiny at the conference. The participants noted however that the coronavirus pandemic did not pose an unsurmountable obstacle to active scientific work and on the contrary only strengthened the professional community’s desire to join forces and benefit from a meaningful collaboration.

Photo: Courtesy of A. Bushmanov

◆ Fukushima 2012-2020 Survey Report on Mental health and Lifestyle

By Prof. Masaharu Maeda, Ph.D, M.D. (Department of Disaster Psychiatry, Fukushima medical University, School of Medicine)

The Fukushima Daiichi Nuclear Power Plant Accident in 2011 caused massive health effects on people living in Fukushima Prefecture, most of which are indirect, non-radiological ones. In particular, mental health problems including posttraumatic symptoms, depression have been distressing many evacuees for a long period after the accident. The total number of disaster-related suicide in Fukushima Prefecture, in fact, reached over 110, much larger than those in Miyagi and Iwaki Prefecture that had had greater number of direct deaths due to the tsunami. Evidence suggests that these mental health consequences result from long-term evacuation, unclear future of evacuees’ lives and social responses including the public stigma towards them. Fukushima Medical University launched a major survey called “Fukushima Health Management Survey” in 2012 that contained different purposes to identify and respond possible health effects among affected people; one of them was “Mental Health and Lifestyle Survey” (http://kenko-kanri.jp/en/health-survey/). This survey aimed to identify affected people at risk of mental health and lifestyle-related problems and provide adequate care for them based on the results. Considering numerous numbers of evacuees (over 100,000 at the start of the survey) and dispersion of them, the remote-counselling using telephone has been conducted by our support team consisting of different professionals (clinical psychologists, social workers, nurses, etc.). According to a follow-up examination, the level of satisfaction with the remote-counselling among people who had received it was generally high. We also focus on making good relationship with preexisting local care resources and providing care based on need of evacuees and residents. Considering the high number of current evacuees, a more efficient care network that can function over the long term for not only evacuees, but also a variety of relief workers including health professionals, needs to be established.

Photo: Telephonic support at Fukushima Medical University.
Scientific Events

◆ February 2020 - Clinical management of irradiated patients – Results of the 2020 Swiss workshop to develop and maintain the knowledge and capacities for the treatment of acutely irradiated patients in Switzerland. 

*By D. Storch and J. Nehme, Swiss Federal Office of Public Health*

According to the provisions of the Swiss radiological protection legislation and the requirements of the International Health Regulations (IHR), the Swiss Federal Office of Public Health (FOPH) has the duty to develop and maintain the knowledge and capacities for the treatment of acutely irradiated patients in Switzerland.

After the Fukushima Daiichi accident, the Swiss government initiated an Interdepartmental-working group (IDANOMEX) that reviewed the emergency protection measures for extreme events. Within the recommendations of IDANOMEX, it was recognized that improving coordination during extreme emergencies and clarifying roles were a priority. In the framework of implementing the IDANOMEX recommendations, the FOPH identified the University Hospital of Zurich (USZ) in 2013 to become a REMPAN Liaison Institution.

In order to develop a consistent and comprehensive clinical management capacity of acutely irradiated patients, the FOPH decided to build on the capacity of USZ in proposing the creation of a clinical network covering the entire country. Therefore, in 2019, it conducted a survey on the level of preparedness of 147 Swiss hospitals in the clinical management of irradiated patients. The box below summarizes some results of this survey which was answered by 37 hospitals.

Based on the results of the survey, a first workshop took place in February 2020 in Bern. Representatives of 10 Swiss hospitals of all regions of Switzerland, representatives from federal bodies such as the FOPH, the Swiss National Accident Insurance Fund (SUV), the Swiss Federal Nuclear Safety Inspectorate (ENSI), the Coordinated Sanitary Services (KSD), and a WHO representative discussed issues, existing resources, tools and needs related to the creation of a clinical network.

The workshop was the first milestone in developing a Swiss medical network that will strive to build the competency and capacity in clinical management of severely irradiated persons. The main outcomes from the discussions were the following:

- The need for the network to access clinical databases of irradiated patients.
- The decision has been taken to create a webpage that will host guidance, list of available antidotes, procedures and links to other webpages such as REMM (Radiation Emergency Medical Management).
- The need for a coordination mechanism was highlighted and the existing IT-tool “IES” (Intervention and Information System) used by Coordinated Sanitary Services (KSD), was identified to be suitable.

NCRP’s Program Area Committee (PAC) 3 Meeting - 7 October 2020.

*By C. Iddins and A. Balajee (REAC/TS)*

Dr. Iddins presented on “Testing: An Overview of SARS-CoV-2 in Comparison to Radiological/Nuclear Response” and Dr. Balajee presented on “Current Perspectives on Point of Care (POC) Biodosimetry Tools”.

NCRP PAC 3 addresses nuclear and radiological safety and security and had 25 members in attendance for these presentations. The NCRP is currently conducting monthly meetings in lieu of their usual annual conference.

REAC/TS Director Dr. Carol Iddins, Health Physicist Dr. Jason Davis, and Nurse/Paramedic Angie Bowen were presenters in the Chemical and Radiological Agents of Opportunity (AoO) for Terrorism Course held 9-10 November 2020. This virtual course was organized by the American College of Medical Toxicology (ACMT), REAC/TS, and the Centers for Disease Control and Prevention (CDC). It was hosted by the University Medical Center, New Orleans (LSU) in collaboration with the University of Alabama at Birmingham. The radiological portion of this course, held November 9, hosted 142 participants from across the United States, including all levels of medical first responders and first receivers, emergency managers and planners, and military responders. This course enhanced interagency collaboration and provided valuable information to community care providers about response to terrorist threats involving radiological “agents of opportunity.”
Education, Training, Exercise

◆ Radiation and Nuclear Countermeasures Program (RNCP), National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH)

M. Satyamitra, C. Rios, T. Winters, L. Taliaferro, B. Hollingsworth, D. Cassatt, A. DiCarlo - Radiation and Nuclear Countermeasures Program (RNCP), National Institute of Allergy and Infectious Diseases (NIAID), National Institutes of Health (NIH)

Biomarkers in Radiation Countermeasures and Biodosimetry Workshop

Held June 1, 2020 in partnership with the Biomedical Advanced Research and Development Authority (BARDA). The objective of the meeting was to understand the role of biomarkers in development of radiation medical countermeasures and novel biodosimetry approaches. This virtual workshop was well-attended by U.S. researchers, corporate entities, and representatives from other government agencies such as the Food and Drug Administration (FDA), Department of Defense (DoD), and National Cancer Institute. Speakers ranged from investigators engaged in bench science and drug developers to clinicians experienced in responding to radiological accidents, from the U.S. and international colleagues from France and Germany. The keynote talk by Dr. Andrea DiCarlo, the Director of RNCP/NIAID highlighted the differences in terminology used for biomarkers in the radiation medical countermeasure and biodosimetry spaces, the application of these biomarkers and the available regulatory pathway for their intended clinical use. Other distinguished speakers include Dr. Mathias Port, Institut für Radiobiologie der Bundeswehr, Germany, Dr. Radia Tamarat, Institut de radioprotection et de sûreté nucléaire, France, and Libero Marzella, Division of Imaging and Radiation Medicine, FDA. In the discussions participants assessed the strengths and gaps that biomarkers fill in the advancement of medical countermeasure and biodosimetry development. Meeting information will be written up for publication in the peer-review literature in the next year.

Immune Dysfunction from Radiation Exposure Workshop

September 9-10, 2020, held in partnership with NIAID’s Basic Immunology Branch, the Radiation Injury Treatment Network (RITN), and BARDA. This 2-day, all-virtual meeting had over 250 registered participants, including academic researchers from around the globe, corporate entities, and representatives from U.S. government agencies such as NASA and DoD along with HHS, FDA, and several NIH institutes. The event brought together leaders in the field of radiation biology who study immunological responses to radiation, along with other prominent specialists addressing a range of immune topics, from thymus function and regeneration, to immune reconstitution and immune system/microbiome interactions. The workshop topics were initially framed by Dr. James Lederer’s keynote presentation “Targeting Immune System Homeostasis as a Medical Countermeasure for Radiation Exposure Injuries”, which was followed by three speaker sessions, each followed by a dedicated discussion. The scientific sessions sought to explore new perspectives for interpreting how systemic injury-like disease states such as radiation exposure may contribute to impaired homeostasis and immune dysfunction. Speakers and attendees engaged in stimulating discussions to identify gaps in knowledge and propose potential topics for new investigation, and explored possible new approaches and interventions. A meeting report for possible publication in Radiation Research is in preparation for 2021.

Animal Care in Radiation Medical Countermeasures Studies Workshop

August 25-26, 2020, held virtually, in partnership with BARDA. The objective of the meeting was to discuss currently accepted methods of working with small and large animal models used in radiation research and how improvements can be made to better represent expected care for humans following a radiation mass casualty emergency. This 2-day, Zoom workshop included researchers, corporate entities, representatives from Health and Human Services sister agencies such as the FDA, DoD, NASA and other NIH institutes. The speakers were selected for their expertise in animal model development and represented academic, private and government institutions. The first day of the workshop consisted of four presentations followed by a panel session that included all speakers. Topics included small (mouse and rats) and large (minipig, rabbit, NHP) animal models for total body and partial body irradiation. The discussion session covered critical issues that impact study outcomes such as institutional animal care committee and statistical considerations, euthanasia criteria, and the pros and cons of harmonizing animal models across institutes. The second day focused on discussion. Four panels of experts covered topic areas focusing on animal housing and handling, infection control, hydration and diet, and euthanasia criteria. Each discussion session was open to questions from meeting participants. The robust discussions identified strengths and weaknesses of current animal model practices and ways to improve methods to better advance medical countermeasure and biodosimetry development. A meeting report covering the details of this meeting will be published in 2021. ◆

Dr. Ronald E. Goans, REAC/TS contractor physician, presented on “Ultrasound Analysis of Acute Local Radiation Injury” at the Health Physics Society Virtual Workshop held 6 October 2020. The information provided in this presentation was the culmination of work he and REAC/TS Director Dr. Carol Iddins performed that assessed various imaging techniques used to evaluate cutaneous injuries caused by ionizing radiation. The session hosted 244 participants from around the world and contributed to the professional understanding of the assessment and treatment of these injuries. ◆
Education, Training, Exercise

◆ IAEA Incident and Emergency Centre (IEC) training webinars

By Mai Fukahori (IEC, IAEA, Vienna, Austria)

The IEC implemented over 50 webinars since April 2020 in various official languages of the UN.

In terms of the medical and public health aspects of preparedness and response in a nuclear or radiological emergency, these following webinars were held:

- Webinar for medical physicists: preparedness and response for nuclear and radiological emergencies in July 2020;
- Webinar on medical response to nuclear and radiological safety or security related emergencies: Lessons learned from case studies in August 2020;
- Webinar “Biosimetry: from fundamental science to practical application in response to nuclear and radiological safety or security related emergencies” in October 2020;
- Webinar for medical doctors on emergency preparedness for nuclear or radiological emergencies in Spanish (Spanish)” in November 2020.

Medical screening and triage

5.66. For areas within emergency planning zones, arrangements shall be made for performing medical screening and triage and for assigning to a predesignated medical facility any individual exposed at levels exceeding the criteria. These arrangements shall include the use of pre-established operational criteria in accordance with the protection strategy.

The aim of these webinars was to assist medical doctors, emergency medical personnel and medical physicists in obtaining knowledge on different aspects of medical management of nuclear or radiological emergencies in an efficient and coordinated manner and also was to provide the specialists in radiobiology and biosimetry with information on utilization of the appropriate technique of biosimetry for dose assessment/reconstruction in case of nuclear and radiological emergencies.

There were over 700 participants at each webinar from all over the world. Distinguished speakers have lectured important topics of preparedness and response for nuclear and radiological emergencies included lessons learned from case studies at Peru, Ecuador, Chernobyl and Fukushima.

The next webinar “Webinar on Biodosimetry— A technique for Dose Evaluation in the response to a nuclear and radiological emergency” will be held in Spanish at early next year. We are planning to implement more webinars and a joint webinar with WHO, REMPAN network related to medical aspects of emergency preparedness and response. We are looking forward to seeing you soon at the future webinars!

Online resources:

◆ WHO on-line training courses:
  ✓ Open WHO

WHO Academy:
  ✓ WHO Academy News
  ✓ WHO Academy Home

HHS/CDC on-line training courses:
  ✓ Radiation Emergency Training and Education (HHS/CDC)
  • Basic radiation principles
    ✓ Radiological Contamination and Exposure
    ✓ Types of Radiation
    ✓ Radiation Basics Made Simple, including:
      ❖ Sources of Radiation
      ❖ Radioactive Decay
      ❖ Measuring Radiation
      ❖ Biological Effects of Radiation
      ❖ Radiation Protection
      ❖ Decontamination
      ❖ Environmental Impact of Radioactivity
      ❖ Responding to Radiation Emergencies
  • Radiation detectors, screening of external contamination
    ✓ How to Use Hand-held Radiation Survey Equipment (Part 1)
    ✓ Ionization Chambers (Part 2)
    ✓ Alpha Scintillation Detectors (Part 3)
    ✓ Public Health Response to Radiological and Nuclear Threats
    ✓ Radiological Terrorism: Just in Time Training for Hospital Clinicians

◆
Education, Training, Exercise

REAC/TS Releases new training resources

REAC/TS RadMed App
The REAC/TS RadMed App was released on 10 September 2020 and is available for free download on Apple and Android devices. The application provides resources and information related to ionizing radiation illnesses and injuries in an easily navigated format. An eGuide, housed within the app, provides information needed for the medical management of those involved in radiation incidents.

The REAC/TS RadMed App includes:
- Updated eGuide for The Medical Aspects of Radiation Incidents
  - Basic health physics and dose estimation (US and SI Units)
  - Treatment of whole body and acute local radiological illnesses and injuries
  - Assessment and treatment of internal contamination with radioactive materials
  - Patient decontamination
  - Delayed effects of exposure to ionizing radiation
  - Risk and psychological issues
- Dicentric chromosome assay (DCA)
- State, federal, national and international resource database
- Assessment tools for radiation incident preparedness
- REAC/TS courses
- REAC/TS videos
- Real-Time REAC/TS news
- Links to partner resources

Download for free the REAC/TS RadMed App on the Apple and Android stores.

Education, Training, Exercise

REAC/TS Downloads Graphics and Videos
REAC/TS has developed new downloadable graphic informational sheets and videos that address appropriate donning and doffing of personal protective clothing, personnel monitoring, and patient decontamination.

The materials are located on the “Resources for Radiation Medical Professionals” page of the newly updated ORISE-REAC/TS website (https://orise.orau.gov/resources/reacts/index.html). These materials are downloadable for free and add to a growing list of resources made available to help enhance emergency medical response to a radiological or nuclear event.

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Network’s News

♦ International Advanced Training Course in Stakeholder Engagement for Recovery after Nuclear Disasters.
By N. Takamura, Atomic Bomb Disease Institute, Nagasaki University, Japan

On 13-17 October, 2020, the online seminar “International Advanced Training Course on Stakeholder Engagement for Recovery after Nuclear Disasters,” was held in Kawauchi Village, Fukushima Prefecture, Japan. Almost 120 specialists including REMPAN members participated in this online seminar.

The objective of this seminar was to explain and present practical experience based on the model developed by Nagasaki University in cooperation with Kawauchi Village to support rehabilitation of the areas affected by the Fukushima accident.

The March 2011 accident at the Fukushima Daiichi Nuclear Power Plant caused extensive human suffering and revealed the need for more effective means of communicating health risks to the public. The rehabilitation of Kawauchi provides a model for future responses. In March 2012, after tedious decontamination work in the village, radiation doses were found to be safe for residents of Kawauchi to return home, and schools and public offices were reopened. In 2013, the public authorities of Kawauchi Village and Nagasaki University, which has helped with the reconstruction work since 2011, established a satellite office known as the “Nagasaki University–Kawauchi Village Reconstruction Promotion Base.”

In the seminar, supports for recovery efforts conducted by the university in Kawauchi were introduced by Professor Noboru Takamura, the co-expertise

process for the recovery of the community after a nuclear disaster was explained by Professor Jacques Lochard (Nagasaki University and the International Commission on Radiological Protection (ICRP)), and the recovery process of the village was introduced by Kawauchi’s mayor, Mr. Yuko Endo. In addition, the activities of food monitoring centers in Kawauchi Village and Tomioka Town (adjacent to Kawauchi) were explained by their staff members. In a summary of field visits on the final day of the seminar, the participants engaged in active discussion.

The seminar was offered not only via live stream, but also as on-demand recordings of each session so that participants could view the seminar at their convenience.

Almost 10 years have passed since the accident, and close to 80% of Kawauchi’s residents have returned back to their homes. On the other hand, 38,000 Fukushima citizens are still under evacuation. The lessons learned from the Fukushima accident are definitely important to think about for recovery from a nuclear disaster.

In the near future, Nagasaki University is going to hold similar seminars in Fukushima, especially for young professionals in the field of radiation medical sciences.

We would like to express our sincere appreciation to all REMPAN members that participated in the seminar.
Network’s News

◆ Online General Assembly of RENEB (Running the European Network of Biodosimetry)
By Matthias Port – Institute for Radiobiology, Munich, Germany

On October 7th and 15th the General Assembly (GA) of RENEB took place as video conference. Meanwhile the association harbours 12 organisations (full members) and a total of 47 scientists from member and non-member organisations, mainly from Europe, contribute to network actions. The main activities of RENEB are all linked with quality assurance and preparedness of biodosimetry laboratories for nuclear and radiological accidents. In this regard, exercises are conducted on a regular basis and the results are published in radiation journals. During the GA it was decided to continue with two strategies for our exercises. One type will focus on “simple” kind of round robin test with the aim to test basic skills of the laboratories and to provide members accredited for different assays with a certificate. This tests will also be the basis for the operational readiness of an organisation in case of an emergency. The second type of exercise will have a clear experimental and research component. The next exercise is under planning for 2021 and will be conducted and supervised from Michael Abend of the Bundeswehr Institute in Munich.

Different groups within RENEB and EURADOS are preparing some highly interesting manuscripts, showing the results and outcome of the last exercise in Lund 2019. The discussions about results and lessons learned from the exercise were fruitful and demanding – please watch out for the results, which will show capabilities and limitations of different assays.

◆ New CDC Training on Radiation Epidemiology for Public Health
By R. Whitcomb (CDC, Atlanta, GA, USA)

Epidemiologic studies help shape public health policy and evidence-based health practices by identifying, quantifying, and understanding health risks of exposure in defined populations. Radiation epidemiology is no exception. Although radiation epidemiologists have studied health effects of radiation exposure for over a century, health effects of exposure to very low doses of radiation or radiation delivered at low dose rates (that is, the kinds of radiation exposure human populations primarily receive in their lives) remain confusing and at times controversial. This is partly due to a wide range of published studies with seemingly contradicting conclusions. This new training provides an overview of important considerations of radiation epidemiology, describes what distinguishes a well-designed or reliable study from an unreliable, and a flawed study, and explores how the results of epidemiologic studies are misused or misrepresented and the impact on creating public health policy and evidence-based health practices.

You can find this and more training resources at:
https://www.cdc.gov/nceh/radiation/emergencies/radiation-epidemiology.htm
REAC/TS Director Dr. Carol Iddins and Health Physicist Dr. Mark Jenkins traveled to Florida the week of 27 July in support of the National Aeronautics and Space Administration’s (NASA) Mars 2020 Perseverance Rover launch.

REAC/TS personnel were stationed on-site during the launch as part of U.S. Department of Energy (DOE)/National Nuclear Security Administration (NNSA) Consequence Management support in the very unlikely event of an anomaly, focused on medical support. The Perseverance Rover, powered by a radioactive energy source, added an additional element of planning and response preparedness for NASA and DOE/NNSA. In preparation for the launch, REAC/TS has spent two years engaging in the coordination and education of emergency responders, first receivers, and emergency planners, both on-site at Kennedy Space Center and off-site at local/regional medical facilities. Refresher education for these professionals was provided via distance learning earlier in July. This effort continues a long REAC/TS history of supporting DOE’s mission of supplying radioactive sources for the Radioisotope Thermoelectric Generators (RTGs) for NASA explorations. RTGs improve NASA’s ability to explore by providing an efficient & effective power system used for the Mars Perseverance Rover. In conjunction with NASA Headquarters Chief Medical Officer, Kennedy Space Center Occupational Health Facility, and local/regional emergency/medical assets, REAC/TS enhanced the emergency response capabilities to maximize the public health and safety of the first responders, healthcare providers, and the community for the Mars 2020 Perseverance Rover launch.

The REAC/TS Cytogenetic Biodosimetry Laboratory (CBL) is the only federally funded facility with Clinical Laboratory Improvement Amendments certification in the United States that uses cytogenetic biodosimetry to assess absorbed radiation dose in exposed individuals. ORISE cytogenetic researchers perform these assessments using a method called dicentric chromosome assay (DCA), a process for identifying and scoring abnormal chromosomes. DCA is widely considered to be the “gold standard” for quantifying DNA damage and for determining how much radiation exposure an individual has received. Taking into account existing capabilities, the CBL can process approximately 100 blood samples per week. But imagine how much the demand and urgency for such services would increase following a large-scale radiological or nuclear incident. That was the scenario REAC/TS CBL Technical Director Adayabalam Balajee, Ph.D. imagined when he proposed creating a web-based educational tool to train users in dicentric chromosome scoring.

"The idea was to use this online training tool to create a pool of efficient scorers who, in times of need, could assist the CBL by scoring samples and thereby reducing turnaround time for dose estimation," said Balajee. The process of turning an activity or task into a game is often referred to as gamification, and the approach successfully applies game design elements to improve user engagement in a wide range of industries including healthcare, education, and retail. In this case, the ORISE Chromosome Challenge game applies crowdsourcing to scale-up the CBL’s ability to respond to mass-casualty incidents.

**Play the Chromosome Challenge game**

**View the countries that have participated in the Chromosome Challenge Game**
Network’s News
◆ Institute of Radiation Emergency Medicine Hirosaki University (IREM)
By Prof. S Tokonami, Institute of Radiation Emergency Medicine Hirosaki University, Japan

In 2020, the Institute of Radiation Emergency Medicine Hirosaki University (IREM) was reorganized into five departments: Radiation Measurement and Physical Dosimetry, Risk Analysis and Biodosimetry, Radiochemistry and Radioecology, International Cooperation and Collaborative Research, and Radiation Emergency Medicine, to strengthen its functions. IREM is conducting research on the reassessment of radon health risks, improvement of cytogenetic biodosimetry, and development of various analytical methods for internal exposure. Exposure systems of radon/thoron and their progenies are currently developed to understand the mechanisms of internal exposure and calibrate radiation monitors. Natural rock samples and lantern mantles are used as radon and thoron generators, respectively. The radon concentration can be controlled in the range of 340 – 3,600 Bq/m³. Average aerosol number concentration can be controlled in the range of 800 – 230,000 particles/cm³. Particle diameter can be controlled in the range of 60 – 120 nm by adjusting the concentration of NaCl solution.

IREM also established the “International Training Program for Radiation Protection”, which offers education courses in radiation protection which include lectures, discussions, and hands-on training. The training program consists of three levels depending on the participants’ needs: entry course, basic course and advanced course.

Furthermore, IREM assists the Advanced Radiation Emergency Medicine Support Center, which is involved in nuclear disaster medical care. IREM has been preparing a comprehensive system for radiological accidents in collaboration with regions where nuclear facilities are located. In light of the COVID-19 pandemic in 2020, Hirosaki University Hospital was responsible for the medical treatment of COVID-19 patients. Thus, radiation emergency preparedness for combined injuries of COVID-19 and radiation exposure will be developed in collaboration with Hirosaki University Hospital and IREM.

◆ EANM2020 virtual, Würzburg WHO-CC
How to Combine Dosimetry and Radiobiology: Mid-Congress-Symposium 6, Improved Insights into Radiobiology – Key for Radionuclide Therapy

Dr. rer. nat. Uta Eberlein, Department of Nuclear Medicine, University of Würzburg, was invited to this talk. An introduction to basic nuclear medicine dosimetry was given. Furthermore, methodological tools on how to combine biomarker studies and dosimetry after internal irradiation were illustrated. Diagnostical procedures in nuclear medicine mostly deal with γ- and β+-emitters, whereas for radionuclide therapies, β- or α-labelled radiopharmaceuticals are employed. Radionuclides cause internal irradiation with time-dependent dose-rates, which can determine DNA double strand breaks (DSBs). An insight on the aims and results of current relevant research in Würzburg, namely to analyse the time- and dose-dependent induction and repair of radiation-induced DSBs after internal irradiation, was also provided during the event. Overall, evidence was provided on the effectiveness of biomarkers in conjunction with internal dosimetry in quantifying the induction and repair of radiopharmacologically-induced DSBs.
New Publications

◆ WHO Guidance for Climate Resilient and Environmentally Sustainable Health Care Facilities

The aim of this guidance is to enhance the capacity of health care facilities to protect and improve the health of their target communities in an unstable and changing climate as well as to empower health care facilities to be environmentally sustainable, by optimizing the use of resources and minimizing the release of waste into the environment. Climate resilient and environmentally sustainable health care facilities contribute to high quality of care and accessibility of services and by helping reducing management costs and thus ensuring better levels of affordability. They are, therefore, an important component of universal health coverage (UHC).

Download link

Read more on Climate-Resilient Healthcare Facilities

◆ Technical specifications of personal protective equipment for COVID-19 – WHO, Geneva, Switzerland

This document provides interim guidance on the quality, performance characteristics and related standards of personal protective equipment (PPE) to be used in the context of COVID-19. This includes WHO Priority Medical Devices, specifically: surgical masks, non-surgical masks, gloves, goggles, face shields, gowns and N95 masks. It is intended for procurement agencies, occupational health departments, infection prevention and control departments or focal points, health facility administrators, biomedical and materials engineering, PPE manufacturers and public health authorities at both national and facility levels.


New Publications

◆ Annals of ICRP - Publication 146

◆ Annals of ICRP - Publication 144
New Publications

◆ Exploring National Nursing Readiness for a Radiological or Nuclear Incident

REAC/TS Nurse/Paramedic Angie Bowen, Director Dr. Carol Iddins, and Health Physicist Dr. Jason Davis were published in the September 2020 edition of the Journal of Emergency Nursing (JEN). 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. As the largest component of the United States health care workforce, nurses will play a critical role in radiological or nuclear disaster medical response. Despite this, U.S. schools of nursing are not currently providing radiation content (75% teach zero or <1 hour), and much of the current nursing workforce may not have received adequate response education and training. Nurses working in emergency departments and those who work at hospitals within the Radiation Injury Treatment Network will be relied on heavily, but little was known about whether these nurses possess the knowledge and skills needed to care for and protect patients after a radiation emergency. Citation: Bowen, A.M., Veenema, T.G., Schneider-Firestone, S., Iddins, C.J., Boyce, D., Davis, J.E., Thornton, C. P. (2020, September). Exploring National Nursing Readiness for a Radiological or Nuclear Incident: A Cross-sectional Study, Journal of Emergency Nursing, 46 (5), 600-610. https://doi.org/10.1016/j.jen.2020.06.002

◆ New IAEA Safety Standards: Arrangements for public communication in preparedness and response for a nuclear or radiological emergency

This Safety Guide supports Member States in developing arrangements for communicating with the public and media and coordinating official information in the response to a nuclear or radiological emergency. These arrangements facilitate the successful implementation of protective actions and the delivery of consistent messages. Specifically, the Safety Guide describes the infrastructure and processes needed to provide useful, timely, truthful, consistent, clear and appropriate information to the public in the event of a nuclear or radiological emergency; respond to incorrect information and rumors; and respond to requests for information from the public and from the news and information media. It will help ensure effective and uniform public information and media communications arrangements during nuclear and radiological emergencies. The guidance is applicable for such emergencies, irrespective of the initiator, whether that be natural event, human error, mechanical or other failure, or a nuclear security event. Download link

COMING, GOING

◆ National Radiation Emergency Medicine Center, Korea Institute of Radiological & Medical Sciences, Seoul.

Dr. Sunhoo Park is the new director-general of the KIRAMS National Radiation Emergency Medicine Center and the head of the WHO Collaborating Center. She is a medical doctor, a pathologist by training, with her major specialization in gastrointestinal pathology. Dr Park was the head of the Radiation Pathology Department of the NREMC since 2010 prior to taking up the DG position.

◆ National National Center for Nuclear Energy, Science and Technology (CNESTEN) – Rabat, Morocco

Ms. Khadija Bendam is the new REMPAN focal point at CNESTEN. She is Head of nuclear/radiological safety and security audits since 2015. From 2002 until 2015 she was in charge of the emergency preparedness and response team of the same institution. Her academical education involved three major fields: environmental engineering (1998), radiation protection (2002) and nuclear physics (2006).

◆ FANC – Belgian Federal Agency for Nuclear Control – Brussels

Lodewijk VAN BLADEL retired from. We are grateful for his support to the work of the WHO Radiation Programme on the areas of radiation protection for medical uses of ionizing radiation and medical response to radiation emergencies. We wish Lodewijk all the best in the new chapter of his life and look forward to hearing from him again!
Upcoming Training Courses and Events

◆ Software Tools for Triage of the Acute Radiation Syndrome (StTARS) workshop

Time: September/October, 2021
Organized by: REAC/TS

Join REAC/TS discussion on the purpose and function of software tools for the triage of acute radiation syndrome developed by scientific groups within NATO. These tools either allow an integrated estimation of dose (BAT, WinFRAT), or the prediction of ARS severity based on changes in blood cell counts (H-module) in the first days after an exposure to ionizing radiation.

Further information: https://orise.orau.gov/reacts/index.html

◆ IRPA-15 Congress – 11-15 Jan 2021 – Seoul, Republic of Korea
https://www.irpa2020.org/

Att!! Special Joint Session of REMPAN and IRPA – Jan 21, 2021 (live broadcast) – see Congress website for more details

◆ 16th Coordination and Planning Meeting of WHO REMPAN – 22-24 March 2021 (via Zoom) - https://www.who.int/news-room/events/detail/2021/03/22/default-calendar/the-16th-coordination-meeting-of-the-who-rempan


◆ EPR BioDose 2020 Conference - September 25-29, 2021 – Okayama University of Science, Japan

◆ 5th European Radiation Protection Week – ERPW - Portugal


DISCLOSURE

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

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