Dear Reader,

It is my pleasure to introduce the 19th issue of our electronic Newsletter, a bit later than usual but nevertheless very timely!

As you might have heard, on March 06, the Director General of the World Health Organization (WHO) Dr Tedros announced sweeping changes in the way WHO will be structured and function. The new vision and mission of WHO were articulated and priorities defined as follows:

- Advancing universal health coverage
- Achieving health-related sustainable development goals (SDGs).
- Addressing the challenge of noncommunicable diseases and mental health, violence and injuries and disabilities.
- Ensuring that all countries can detect and respond to acute public health threats under the International Health Regulations
- Increasing access to quality, safe, efficacious and affordable medical products
- Addressing the social, economic and environmental determinants of health.


We now have a new strategy, a new mission, 13 new processes, a new WHO-wide operating model, many complementary initiatives and—a more open and collaborative Organization.

A great example of this new emerging culture in our Organization was the wonderful, recent launch of our new WHO values charter. This short video brings this landmark event to life. More importantly, all of us at WHO are encouraged to bring these values to life in our day to day work with our colleagues and collaborators.

It will be through our operational plans that we translate the ambition of General Programme of Work for 2019-2023 (GPW13) into real and positive impact in people’s lives at country level.

We are grateful for you—our collaborators who are providing the support for implementing this change and it is you who are providing the energy to make change happen.

Thank you!

With warmest regards,

Dr Zhanat Carr - WHO REMPAN Secretariat
News – From REMPAN Secretariat

In the first six months of 2019, the WHO REMPAN Secretariat kept busy and contributed to the following activities:

◆ 13-14 January 2019 – Fukushima, Japan. The 3rd International Symposium of the Network-type Joint Usage/Research Center for Radiation Disaster Medical Science - Cooperative wisdom among communities for disaster preparedness and response. Three universities members of the Network-type Joint Usage/Research Center for Radiation Disaster Medical Science form a new core for radiation disaster recovery and medical research. Following the international symposiums in Hiroshima (2016) and Nagasaki (2017), the 3rd symposium discussed the following topics: (1) Social impact of a radiation disaster and radiological protection studies: Science with community, (2) Radiation causality following Hiroshima and Nagasaki events in health care settings, radon, radioactivity in food and drinking water, and risk communication.

◆ On 14 and 15 February 2019, Geneva, Switzerland. WHO hosted two consequent bilateral meetings with the senior management of the two WHO Collaborating Centers:

- Institute for Radiological Protection and Nuclear Safety, France (IRSN) – a WHO Collaborating Center since 2010; and
- Federal Office for Radiation Protection, Germany - Bundesamt für Strahlenschutz (BfS)

Each bilateral meeting focused on reporting on relevant activities under the collaboration work plan and discussed the ways of strengthening cooperation with WHO in the areas of radiation emergency, radiation safety in health care settings, radon, radioactivity in food and drinking water, and risk communication.

News – From REMPAN Secretariat

◆ 20-21 March – Rome, Italy: the 18th meeting of the HERCA (Heads of Radiation Protection Competent Authorities), Working Group Emergencies (WGE) was hosted by the Italian National Inspectorate for Nuclear Safety and Radiation Protection in the historic heart of Rome. The meeting participants discussed (i) sharing knowledge and understanding of EPR arrangements in other European countries; (ii) commitment for cross-border cooperation; (iii) sustainability and robustness of communication arrangements for emergencies; (iv) research priorities for the EPR area.

◆ 3-5 April – Roskilde, Denmark. The 5th NERIS Workshop was hosted by DTU-Nutech and gathered 85 participants, presented 58 papers dedicated to “Key challenges in the preparedness for emergency response and recovery of a nuclear or radiological event” The WS addressed the following challenges: Radiological impact assessment during all phases of nuclear and radiological events
- Countermeasures and countermeasure strategies in emergency & recovery, decision support & disaster informatics
- Setting-up a trans-disciplinary and inclusive framework for preparedness for emergency response and recovery

◆ 22-14 May – Oslo, Norway. EC-funded SHAMISEN-SINGS Consensus Workshop was hosted by the Norwegian Academy of Science and Letters in Oslo. The WS participants discussed the ways to enhance preparedness and recovery from a radiation emergency through development of dosimetry and health surveillance applications for hand-held devices to support data collection on radiation measurements, health and well-being indicators. WHO new strategy on digital health, and eHealth classification and recommendations published in 2019, were presented to the participants.
Scientific Events

Global Conference on Radiation Topics, ConRad 2019, Munich, Germany
By Matthias Port, BIR, Munich, Germany

On May 21-23, 2019 the “Global Conference on Radiation Topics – Preparedness, Response, Protection and Research” (ConRad 2019) took place at the Bundeswehr Medical Academy in Munich, Germany.

This 23rd Nuclear Medical Defense Conference hosted by the Bundeswehr Institute of Radiobiology (BIR) covered a broad range of topics in 64 presentations. Two key sessions addressed the issues of “Living in contaminated areas” and “Latest developments in radiation preparedness”. Further topics highlighted radiation health effects and medical countermeasures, radiation biology, physics and protection, radiation accident management, and many more. More than 200 participants from 31 countries attended this international and interdisciplinary conference, which serves as platform for civilian and military experts to discuss important radiation topics and to intensify networking within the societies of radiation research.

Abstracts of all sessions are available at the conference homepage. Further, the conference topics will be published in a special issue of the “Health Physics Journal”. ◆

RICOMET 2019: Social Sciences and Humanities in Ionising Radiation Research - 1 - 3 July 2019 – Barcelona, PRBB - Barcelona Biomedical Research Park
By Zhanat Carr, WHO

RICOMET conference is a unique international, multidisciplinary and stakeholder-driven annual event, devoted to academics, researchers, experts and civil society stakeholders involved in social science and humanities research on ionizing radiation. The conference includes scientific sessions, workshops, round tables, parallel meetings and is attended by participants working in the field of radiation and social sciences and humanities. The 2019 edition focused on the societal aspects of different exposure situations and related uncertainties in decision-making, including individual and collective decision-making, stakeholder engagement and communication aspects of exposures to radon in dwellings, medical applications, NORM and accidental contaminations. WHO presented on-going work towards development of the new framework for management of mental health and psycho-social impact of nuclear emergencies. ◆

Scientific Events

Conference of Russian-Speaking Countries, Gomel, Belarus
By Andrey Bushmanov, FMBC, Moscow, Russia

The conference “Modern Problems of Radiation Medicine: From Science to Practice” was hosted by the Republican Research Center for Radiation Medicine and Human Ecology in Gomel, Belarus on May 22-25, 2019 and was attended by a number of the WHO REMPAN institutions, including the Scientific Research Center, FMBC (Moscow, Russia), the Urals Research Center for Radiation Medicine (Chelyabinsk, Russia), the Nikiforov Russian Center of Emergency and Radiation Medicine (NRCERM) EMERCOM of Russia (St. Petersburg, Russia), and the Medical Radiation Research Center (Obninsk, Russia).

The director of the WHO Collaborating Center (CC) Dr A. Bushmanov opened the plenary session giving a talk on “A New Approach to Biological Dosimetry: Analysis of Double-strand DNA Breaks”.

Highlights of the work of all WHO CCs in the field of emergency preparedness, health status of the liquidators of the Chernobyl NPP accident were reported. The meeting participants discussed the issues of closer cooperation and collaboration of the WHO REMPAN CCs of the Russian-speaking countries of the former Soviet Union. ◆
**Education, Training, Exercise**

**Web Seminar on Biodosimetry, Valencia, Spain**
By Alegria Montoro Pastor, Laboratorio de Dosimetría Biológica, Spain, Valencia

On April 30, 2019 the Web Seminar “**Biodosimetry and its Applications in Response to Radiological Emergencies and Medical Application**” was organized by “Red Lationamericana de Protección Radiológica en Medicina”.

Topics addressed the existing networks and the experience of RENEB, the use of biodosimetry in radiological and/or nuclear emergencies and its medical applications for patients. Further, the particular experience of the Laboratory of the Hospital Universitario y Politécnico la Fe in Valencia, Spain, was presented as well as the latest advances in what is known as high performance tests in biodosimetry based on gene expression, immunoassays. All presentations are available online in Spanish.

**REAC/TS I-MED Course at Utrecht, Netherlands**
By Carol Iddins, REAC/TS, Oak Ridge, USA

On March 25-29, 2019 REAC/TS director Dr. Carol Iddins, Health Physicist Dr. Jason Davis, and Nurse/Paramedic Wayne Baxter gave an **International Medical Management of Radiation Injuries (I-MED) Course** at the Calamiteitren Hospital, Unicersitair Medisch Centrum Utrecht, Netherlands.

31 participants from three countries (Estonia, Netherlands, and the US) attended the course sponsored by the U.S. Department of Energy/National Nuclear Security Administration's Office of Counterterrorism and Counterproliferation's Office of Nuclear Incident Policy and Cooperation and the NATO Center of Excellence for Military Medicine.

The 4.5-day course included lectures and hands-on demonstrations / skills stations, with a culminating exercise that involved teams caring for a simulated radiologically contaminated patient from the pre-hospital setting through the emergency department.

**First Responder Training Course, Vienna, Austria**
By Almira Geosev, Civil Protection School of the Austrian Federal Ministry of Interior, Vienna, Austria

From July 08-12, 2019 the **Civil Protection School** of the Austrian Federal Ministry of the Interior organized a training course for **First Responders to Radiological or Nuclear Emergencies** together with the IAEA. The Civil Protection School has been the first European Capacity Building Center (CBC) of the IAEA in 2016, and in addition it is also a REMPAN Liaison Institution.

Experts from the IAEA, the Austrian CBC, from The Netherlands and Morocco trained 24 participants from 21 different countries. The purpose of the course was to train first responders on the concepts and goals of emergency preparedness and response in case of radiological or nuclear emergencies. The training course also provided a good opportunity to discuss next steps in the development of national capabilities of the Member States with representatives of the IAEA, but also on a bilateral basis.
Education, Training, Exercise

South Korean Radiation Emergency Medicine Personnel Trained by QST, Chiba, Japan
By Hiroko Ino, Yayoi Tsutsumi, Keisuke Kobayashi, Hideo Tatsuzaki, QST, Chiba, Japan

The National Institutes for Quantum and Radiological Science and Technology (QST) organized a training course on radiation emergency medicine for Korean radiation emergency personnel on April 16-18, 2019 at QST, Chiba, Japan. Eleven trainees, mainly South Korean nurses and administrative hospital staff, took part in the course, held upon request by the Korea Institute of Radiological and Medical Sciences (KIRAMS).

The course shared essential radiation emergency medicine knowledge and skills needed by the trainees when their hospitals receives victims involved in radiological accidents. Besides lectures, the QST course included a practical radiation measurement exercise and a drill for receiving patients with injuries and contamination from radioactive material. Some practical lessons using 137 Cs and 90 Sr took place in radiation-controlled areas. In these cases, QST registers the trainees and provides them with personal dosimeters in accordance with the law.

QST uses hands-on lectures in its various educational activities, building on experience by its former organization the National Institute of Radiological Sciences (NIRS).

The course was part of a series of training courses launched by NIRS in 2005 in line with a Memorandum of Understanding with KIRAMS. Following a restructuring in April 2019, the QST committed to continuing the course series. As of May 01, 2019 a total of 294 Korean medical professionals, health physicists, radiation researchers, and others have participated. ◆

Demonstration of inverse square law – Chiba, Japan – April 2019

RITN's Exercise Program 2019, Minneapolis, USA
By Curt Mueller and Cullen Case, RITN, Minneapolis, USA

Each year, the Radiation Injury Treatment Network (RITN) requires its member hospitals to complete an annual RITN tabletop exercise.

For 2019, hospitals will have two tabletop scenarios to choose from to fulfill this requirement.

- The first option focuses on the planning and messaging that would need to take place prior to patients arriving and highlights the coordination required between various hospital disciplines (i.e. emergency management, public information, and clinical staff).
- The second option focuses specifically on the treatment of a patient with Acute Radiation Syndrome (ARS).

Both options are offered web-based exercises where up to 15 hospitals can participate at a time allowing them to interact with their peers and share best practices.

In addition to the annual tabletop exercise, RITN also will be awarding two full-scale exercise grant, one functional exercise grant, and four regional tabletop exercise grants in 2019. Hospitals may develop the exercise around their specific hospital needs. The only requirement for the exercise is that the scenario is based on a distant radiological event and that patients arrive via the National Disaster Medical System (NDMS).

For regional tabletop recipients the RITN develops all of the exercise materials and provides a facilitator to lead the exercise.

Over 750 exercises developed by RITN have been held by hospitals affiliated with RITN.

There are 14 years of RITN Exercise Materials and After Action Reports (AARs) available online. ◆
Coming, Going

New WHO CC for Radiation and Health, Rome, Italy
By Cristina Nucettelli, PRORA, Rome, Italy

On January 12, 2018, the WHO designated the National Center for Radiation Protection and Computational Physics (PRORA) as a WHO Collaborative Center for Radiation and Health. The Center will work as WHO CC on assessment, communication and control of radiation risks in the following 5 areas, including preparation and response to nuclear and radiological emergencies.

The center will serve as a focal point for WHO REMPAN activities in Italy. In this role the center will contribute to enhance REMPAN’s regional competence and capabilities for radiation emergency management and public health interventions.

The mission of PRORA of the Italian National Institute of Health (Istituto Superiore di Sanità) is the promotion of public health by protecting from risks linked to exposure to ionizing and non-ionizing radiation, optimizing medical radiation exposures, and developing methods of computational physics.

New Head of Fukushima WHO CC, Japan

Since March 2019, Prof. Koichi Tanigawa, former Vice President of Fukushima Medical University and head of the WHO CC in Fukushima moved to Futaba Medical Center in Tomioka to establish the medical system in the coastal region near the Daiichi NPP. The new Head of the Fukushima WHO CC is Prof. Kiyoshi Saito - neurosurgeon, Chairman of the Department of Neurosurgery. His appointment at the FMU is a Vice President and Director of Fukushima Global Medical Science Center.

New Head of Chiba WHO CC, Japan

Since May 2019, Prof. Shinichi Yamashita, former Vice President of Nagasaki University and the head of the WHO CC in Nagasaki moved to Center for Advanced Radiation Emergency Medicine of the National Institutes for Quantum and Radiological Science and Technology (NIRS/QST) in Chiba, Japan. His appointment at the Director General of the Center and the head of the WHO CC.

News – From Network Members

Cooperation between Japanese and German Universities planned

By Shunichi Yamashita, Nagasaki University/Fukushima Medical University

On February 11-12, 2019 the “Joint Workshop on Radiological Protection and Promotion of Nuclear Medicine” of Würzburg University and Nagasaki University was held at the Department of Nuclear Medicine in Würzburg, Germany under the framework of the WHO REMPAN and Bilateral Academic Cooperation Agreement.

The close cooperation in the area of radiation emergency medicine and nuclear medicine were productively discussed.

It was agreed to further expand the integration of the current activities of Fukushima Medical University. A site-visit of various facilities and equipment especially clinical use and application of cyclotron for radioisotope therapy of the Department of Nuclear Medicine completed the visit.
The year 2019 marks the 40th anniversary of the designation of the Radiation Effects Research Foundation (RERF) as a WHO Collaborating Centre. In 1947, the Atomic Bomb Casualty Commission (ABCC), RERF’s predecessor organization, was established and launched health studies of the atomic bomb survivors and their offspring.

In 1975, ABCC was reorganized into RERF under Japanese civil law as a nonprofit foundation to conduct studies for peaceful purposes on medical effects of radiation and associated diseases in humans, with a view to contributing to maintenance of the health and welfare of the atomic bomb survivors and to enhancement of the health of all humankind. RERF is operated bi-nationally, in accordance with an agreement between the governments of Japan and the United States.

ABCC/RERF studies are characterized by long-term follow-up of large populations. These studies in Hiroshima and Nagasaki are broadly considered one of the most reliable sources of information on radiation health effects because of the size and nature of the population examined. For this reason, the studies have come to form the basis for risk assessment of radiation exposure, with the study results utilized by international organizations, such as the WHO, United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), International Commission on Radiological Protection (ICRP), International Atomic Energy Agency (IAEA), and others.

In May 1979, RERF was designated as a WHO Collaborating Centre for Radiation Effects on Humans.

In 1988, RERF joined the WHO REMPAN family and became one of REMPAN’s original eight Collaborating Centres.

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Radiation Effects Research Foundation (RERF), Hiroshima, Japan

The current terms of reference for RERF’s role as a WHO REMPAN CC are to contribute to WHO activities in the area of:

- low-dose radiation risk assessment
- radiation emergency medicine and REMPAN activities
- strengthening countries laboratory capacities under IHR (2005) requirements through participation in BioDoseNet activities.

Among RERF’s major contributions to WHO REMPAN in the past 40 years was the hosting of the 6th Coordination Meeting of WHO REMPAN Collaborating Centres in Hiroshima in 1995 and the 50th Anniversary of the atomic bombings of Hiroshima and Nagasaki, a meeting organized by the late Dr. Itsuo Shigematsu, RERF Chairman.

RERF looks forward to continuing its contributions to WHO activities for the enhancement of the health of all humankind. ◆
News – From Network Members

SEED, a New Operational Dosimetric Reconstruction Tool, Clamart Cedex, France
By Fabrice Entine, SPRA, Clamart Cedex, France

In the context of a radiological accident involving high doses of ionizing radiation, for irradiated patients, priority goes to the diagnosis because it is essential to know how the dose is distributed among the organs in order to sort the victims according to the severity of the exposure, and then lead them to the most appropriate health structures.

At present, there are only few field techniques capable of rapidly characterizing an external radiation exposure in case of an accident involving a large amount of victims. Nevertheless scientific, industrial and military applications as well as terrorist menace generate a significant probability of such an event. An operational dosimetric reconstruction tool called SEED is currently being developed as part of collaboration between SPRA (French defense radiation protection service) and IRSN (Institute for Radiation Protection and Nuclear Safety). SEED aims to take advantage of a powerful mobile calculator implemented by a team doctor / physicist.

The dosimetric reconstruction tool uses the Geant4 Monte Carlo code to provide dose maps in the area of an irradiation accident. The device is integrated in a militarized and hardened case, and it can be freed from any link to a remote computer cluster thanks to a powerful multicore calculator. Trained users can quickly design the whole scene of the accident using mostly the mouse and navigating in this 3D virtual world with a first person camera.

A first physical validation step in comparison with a reference calculation code, MCNPX, has been performed.

An experimental validation is planned, based on irradiation of an anthropomorphic dummy equipped with thermoluminescent dosimeters using a high activity iridium 192 source.

News – From Network Members

Revision of National Medical Emergency Plan, Vienna, Austria
By Andreas Ziegler, CBRN Advisor for Ambulance Service, City of Vienna

Given the low frequency of radiation accidents, the focus of nuclear emergency planning in Austria has traditionally been on mitigating effects of widespread contamination. In 2008, a first version of the National Medical Emergency Plan was developed by order of the Austrian Federal Ministry of Agriculture.

While the content of the document was widely accepted, it was nevertheless only partially included into the emergency planning of the Austrian Federal States, which the prime responsibility in organizing emergency services and the medical sector. To enhance implementation, the National Medical Emergency Plan was revised in 2018 and converted into a Guideline for Medical Diagnostic and Therapy after Radiological Emergencies.

With this revised guideline the federal authorities expect major progress in medical emergency preparedness in Austria.

CDC Launched Radiation Emergency Preparedness Videos
By Robert Whitcomb, CDC, Atlanta, USA

The CDC has launched the videos Success Stories in Radiation Emergency Preparedness as examples of how state and local partners have used CDC resources to increase their radiation emergency preparedness.

The videos provide inspiration for how those resources can help support preparedness efforts on the community level.
New Publications

NCRP Report No. 180 Published in 2018


NCRP Commentary No. 28 Published

NCRP released Commentary No. 28 “Implementation Guidance for Emergency Response Dosimetry”, which provides practical, actionable guidance and tools for emergency planners and responders on tracking radiation dose early in a response to a radiological or nuclear incident, when not every responder has a dosimeter, but they all need protection.

WHO/IARC Publication on Thyroid Health Monitoring after Nuclear Accidents

In 2019, the publication “Knowledge Gaps and Research Ideas Proposed by the IARC Expert Group on Thyroid Health Monitoring after Nuclear Accidents” (Togawa K, Schüz J, (Eds). Internal Report, Lyon, France 2019)) was published by the International Agency for Research on Cancer (IARC).

The report was developed with the aim of encouraging the relevant scientific community, health-care providers, and research funding bodies around the world to create and strengthen the evidence base for future public health and other interventions in case of a nuclear accident, such as a thyroid monitoring program.

New Publications

IAEA Report on Communication Symposium published

The report on the “International Symposium on Communicating Nuclear and Radiological Emergencies to the Public” was published by IAEA.

Proceedings of the 5th Regional European IRPA Congress in The Hague Available

The “Proceedings of the 5th Regional European IRPA Congress” held on June 04-08, 2018 in The Hague, The Netherlands are now available online together with the content of the refresher courses.
New Publications

Proceedings of National Academies of Sciences, Engineering, and Medicine Workshop Published 2019

The publication “Exploring Medical and Public Health Preparedness for a Nuclear Incident” summarizes the presentations and discussions from a workshop held by the National Academies of Sciences, Engineering, and Medicine on August 22–23, 2018, in Washington, DC, to explore medical and public health preparedness for a nuclear incident.

The event brought together experts from government, nongovernmental organizations, academia, and the private sector to explore current assumptions behind the status of medical and public health preparedness for a nuclear incident, examine potential changes in these assumptions in light of increasing concerns about the use of nuclear warfare, and discuss challenges and opportunities for capacity building in the current threat environment. ◆

IRSN Publication on the Social Consequences of the Fukushima-Daiichi Accident


The aim is to investigate the social and political consequences of the Fukushima accident that occurred in 2011. It is primarily concerned with the decision-making methods used by the authorities following the accident and their impact on the population. It is unique in that it provides a multidisciplinary perspective on how is managed the post-accidental situation in Japan. ◆

Proceedings of 12th HEIR 2018 Conference Published

The proceedings of the “12th International Conference on the Health Effects of Incorporated Radionuclides (HEIR)” that took place on October 8-11, 2018 at Fontenay-aux-Roses, were published recently.

The publication is available in an open access journal, Bioweb of conference, and each abstract published has a unique DOI, making these abstracts citable. ◆

New Publications

WHO Recommendations on Digital Interventions for Health System Strengthening

The key aim of the WHO guideline “Recommendations on Digital Interventions for Health System Strengthening” is to present recommendations based on a critical evaluation of the evidence on emerging digital health interventions that are contributing to health system improvements, based on an assessment of the benefits, harms, acceptability, feasibility, resource use and equity considerations.

Proceedings of National Academies of Sciences, Engineering, and Medicine Workshop Published 2019:

The proceedings of the 2019 Workshop “Long Term Health Monitoring of Populations Following a Nuclear or Radiological Incident in the United States” are now published and can be downloaded free of charge at: http://www.nap.edu/catalog/25443

Long Term Health Monitoring of Populations Following a Nuclear or Radiological Incident in the United States
Upcoming Training Courses and Events

WHO CC REAC/TS Training Courses
- 06-09 August, 2019, Oak Ridge, USA
  Radiation Emergency Medicine (REM)
- 12-16 August, 2019, Oak Ridge, USA
  Advanced Radiation Medicine

WHO Online Training Courses
- Risk Communication in Health Emergencies
- Simulation Exercise Management: Introduction

Other Training Courses
- 9-12 September, 2019, Rockville, USA
  Radiation Epidemiology and Dosimetry Course

Upcoming Events
- 11-13 September 2019, Bratislava, Slovak Republic
  ENGAGE final project workshop
- 27 September, 2019, Obninsk, Russia
  IV International Readings in Memory of Academician A.F. Tsyb, Obninsk, Russia
- 09-11 October, 2019, Brétigny sur Orge, France
  STARS, Software Tools for Triage of the Acute Radiation Syndrome – a Practical Workshop
- 14-18 October, 2019, Stockholm, Sweden
  European Radiation Protection Week 2019
- 17-21 November, 2019, Adelaide, Australia
  ICRP – 5th International Symposium on the System of Radiological Protection
- 11-14 May 2020 – Seoul, Republic of Korea
  The 15th Congress of the International Radiation Protection Association (IRPA-15)
- 12-14 May – Seoul, Republic of Korea
  The 16th WHO REMPAN Coordination meeting – for network members only.
- 2021 – Abu-Dhabi, U.A.E. – ConvEx(3) interagency nuclear emergency exercise.

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

The REMPAN e-NEWSLETTER was prepared by the WHO Collaborating Centre for Radiation Emergency Medical Preparedness and Assistance, Würzburg, Germany and the REMPAN Secretariat, WHO, Geneva, Switzerland.

The designations employed and the presentation of the information in this Newsletter do not imply the expression of any opinion whatsoever on the part of the Secretariat of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. The World Health Organization does not warrant that the information contained in the Newsletter is complete and correct and shall not be liable whatsoever for any damages incurred as a result of its use.

Contacts / Feedback
Dr. Zhanat Carr, REMPAN Secretariat
Radiation Emergency Medical Preparedness and Assistance
Department of Public Health and Environmental and Social Determinants of Health (PHE)
World Health Organization HQ
Email: carrz@who.int

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WHO REMPAN e-NEWSLETTERs download

Editors
Dr Zhanat Carr, WHO
Dr Rita Schneider, REMPAN CC
Würzburg

Design
Dr Rita Schneider, REMPAN CC
Würzburg

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Contributors to this issue