World Health Organization

75 HEALTH FOR ALL

The role of WHO REMPAN in strengthening global preparedness to radiation emergencies

Dr Zhanat Carr
Radiation and Health Unit
Dept of Environment, Climate Change and Health

18 Sept 2023 – Mondsee, Austria

Rights and obligations of WHO are established under the IHR (2005) and its mandate determined by the World Health Assembly

IHR (2005) on all hazards approach:

- “disease” means an illness or medical condition, irrespective of origin or source, that presents or could present significant harm to humans;
- If a State Party has evidence of an unexpected or unusual public health event within its territory, **irrespective of origin or source**, which may constitute a public health emergency of international concern, it shall provide to WHO all relevant public health information.
- All general provisions of IHR apply to all hazards.

WHA Resolutions on deliberate use of CBRN agents:

- WHA54.14 (21 May 2001)
- WHA55.16 (18 May 2002) on global public health response to natural occurrence, accidental release or deliberate use of biological and chemical agents or radionuclear material that affect health.

WHO's Member States requested the WHO Director-General to strengthen activities on global public health preparedness and response to the **deliberate use of biological, chemical or radiological agents** that affect health.

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UNITED ACTIO

WHO Radiation and Health Unit

- Is a global focal point on all matters pertaining to radiation risk in human environment in existing, planned and accidental situations
- Located in the WHO Headquarters in Geneva as a part of the Department of Environment, Climate Change and Health within the Division of Healthier Populations
- Provides technical support to 6 WHO Regional Offices and 150 Country Offices
- Links with other departments within WHO on overlapping mandates (cancer, medical devices, health emergencies, mental health, occupational safety, ethics, communications, etc.)
- Works with partners, stakeholders, collaborating centers, and expert networks

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WHO Radiation and Health Unit: Areas of work

- Non-ionizing radiation (EMF, UV, optical and other radiation)
- Ionizing radiation
  - Existing (Radon, Chernobyl, Fukushima, nuclear tests consequences)
  - Planned (medical and occupational)
  - Emergency situations
    - Capacity building and monitoring preparedness state
    - Emergency response
- Functions
  - Norms and standards
  - Policy development, implementation of the International Health Regulations
  - Research agenda

Our Partners in Radiation Health

- International Organizations (IAEA, FAO, UNSCEAR, UNEP, ITU, ILO, and others), IACRNE, IACRS, EC
- National partners (health authorities and other agencies dealing with matters pertaining to radiation health)
- NGOs (ICRP, IOMP) and regional platforms, projects and consorti
- Professional societies (IRPA, IARBED etc.)
- Expert networks of specialized institutions
  - REMPAN
  - BioDoseNet
- WHO Collaborating Centers and expert networks

Relevant Networks supporting WHO Response to Radiation Emergencies

- **Radiation Emergency Medical Preparedness and Assistance Network – WHO's technical expertise arm since 1987**

  https://www.who.int/groups/rempan/about

- **WHO BioDoseNet - global Biological Dosimetry laboratories Network since 2008**

  https://www.who.int/groups/biodosenet

- **INFOSAN – WHO-FAO network of national food safety authorities**

Other Networks

- **Global Disease Outbreak Alert and Response Network - GOARN**

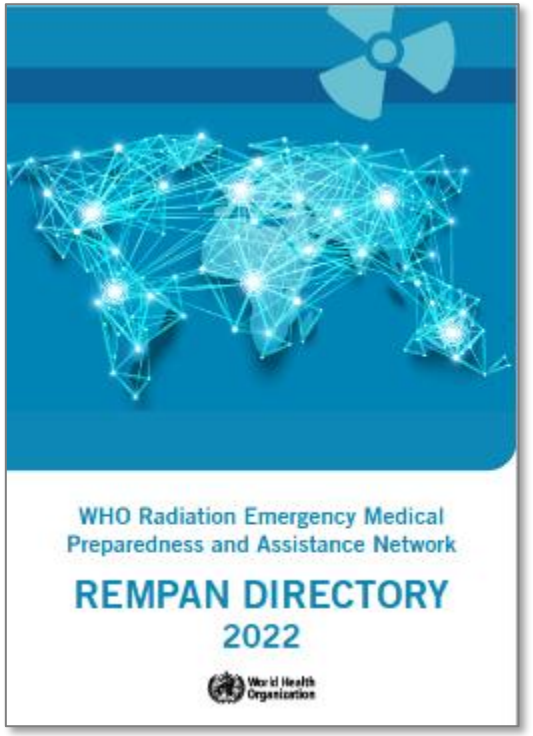
  https://www.who.int/emergencies/partners

- **Public health emergency operations centres network (EOC-NET)**

  http://www.who.int/ihr/publications/WHO_HSE_GCR_2013.4/en/

- **Emergency Medical Teams (EMT) Network**

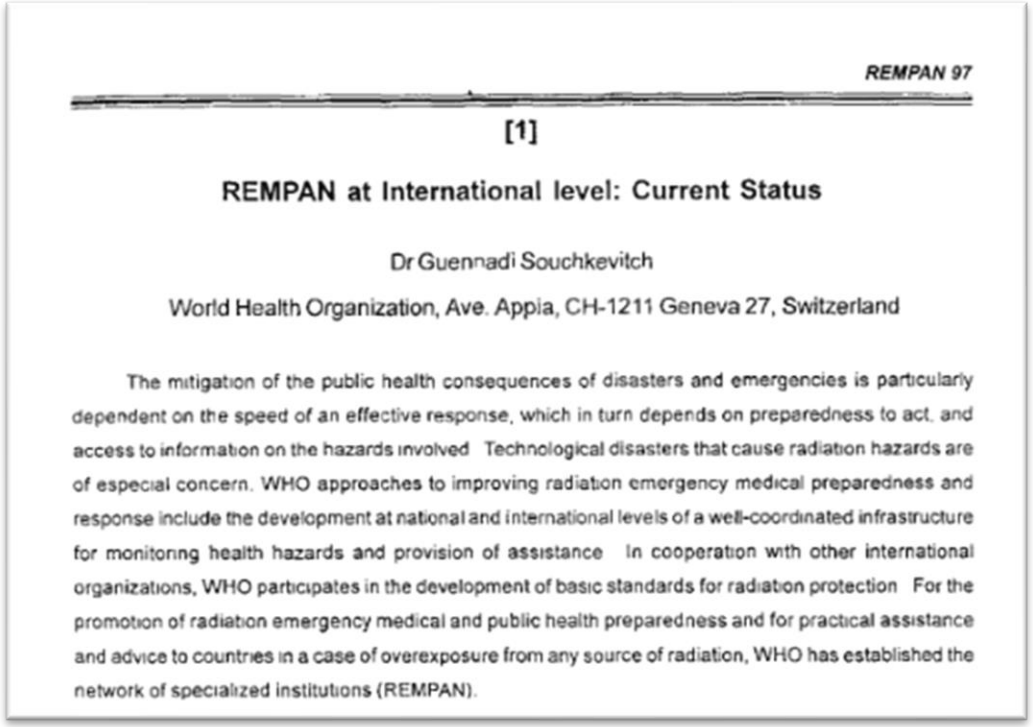
  https://www.who.int/emergencies/partners/emergency-medical-teams



WHO REMPAN history

Established in March 1987 by the original six members from

- Argentina
- Australia
- Brazil
- France
- USA
- USSR



REMPAN 97

[1]

REMPAN at International level: Current Status

Dr Guennadi Souchkevitch

World Health Organization, Ave. Appia, CH-1211 Geneva 27, Switzerland

The mitigation of the public health consequences of disasters and emergencies is particularly dependent on the speed of an effective response, which in turn depends on preparedness to act, and access to information on the hazards involved. Technological disasters that cause radiation hazards are of especial concern. WHO approaches to improving radiation emergency medical preparedness and response include the development at national and international levels of a well-coordinated infrastructure for monitoring health hazards and provision of assistance. In cooperation with other international organizations, WHO participates in the development of basic standards for radiation protection. For the promotion of radiation emergency medical and public health preparedness and for practical assistance and advice to countries in a case of overexposure from any source of radiation, WHO has established the network of specialized institutions (REMPAN).

Today REMPAN comprises 19 Collaborating Centres, 40+ Liaison Institutions, and more than 50 individual observers , total of 183 network members today and keeps growing!

Types of REMPAN membership

Since its inception in 1987, REMPAN expanded from four to more than forty members worldwide including medical, academic, and research institutions specializing in medical and public health fields related to the entire cycle of management of radiation emergencies (prevention, planning, response, long-term follow-up). There are three levels of membership:

- WHO Collaborating Centres – a formal status designated by the WHO in agreement with national health authorities;
- **Liaison Institutions** – informal relationship defined by exchange of letters of intent to collaborate on certain technical areas between WHO REMPAN secretariat and an institution;
- **Observers** – individual experts interested in the area of medical response to radiaiton emergencies.

WHO Collaborating Centres (800+)

- Key institutions with relevant expertise distributed throughout the world, representing valuable resource and a technical arm of WHO capacity
- The CCs are a formal cooperation mechanism to:
  - assist WHO in implementing its mandated work by supporting the achievement of its planned strategic objectives;
  - enhancing the scientific validity of its global health work;
  - developing and strengthening institutional capacity in countries and regions.
- WHO CCs are designated by the Director General to carry out activities in support of WHO programs
- **https://www.who.int/about/partnerships/collaborating-centres**

WHO Global Expert Network - REMPAN Key Functions:

Technical support to WHO in response to actual radiological and nuclear emergencies

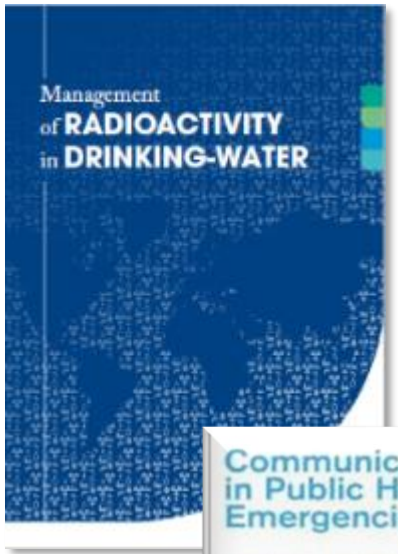
Strengthening national and regional preparedness to radiation emergencies

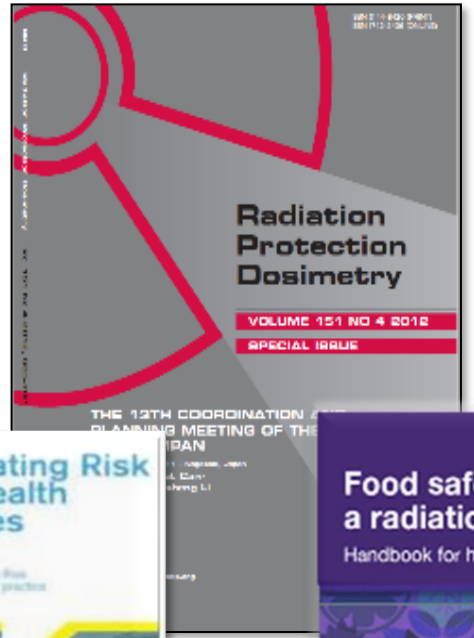
- **Technical guides/tools development**
- **Trainings and workshops**
- **Exercises**
- **Information sharing platform**

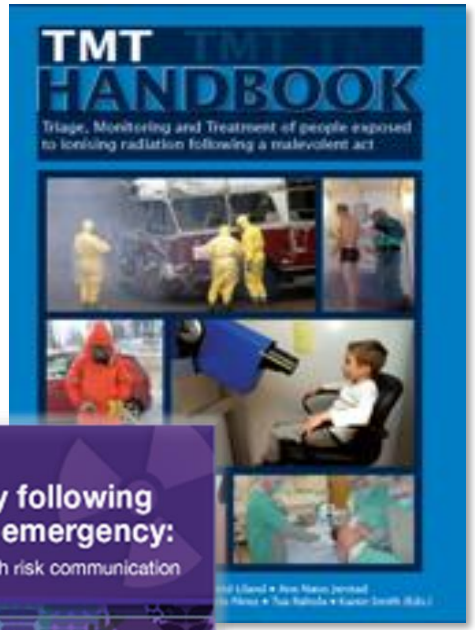
Technical support of activities aimed at implementation of International Health Regulations in the area of radiation emergencies

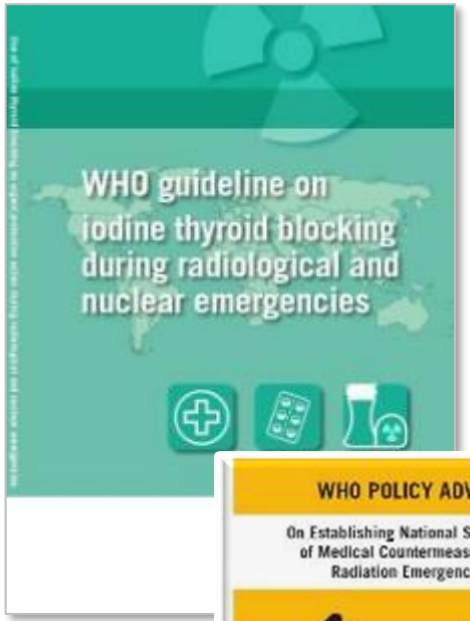
- **IHR Emergency Committee roster**
- **JEE expert roster**

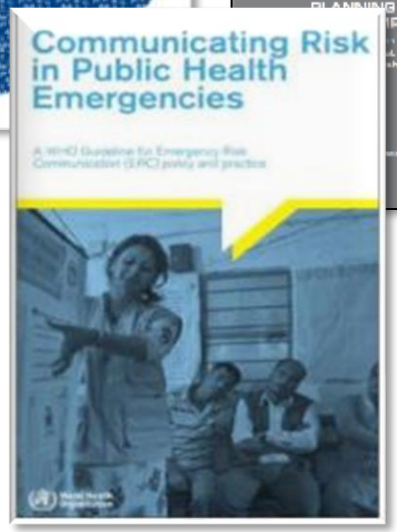
REMPAN experts contribute to WHO technical reports, guidance and policy development

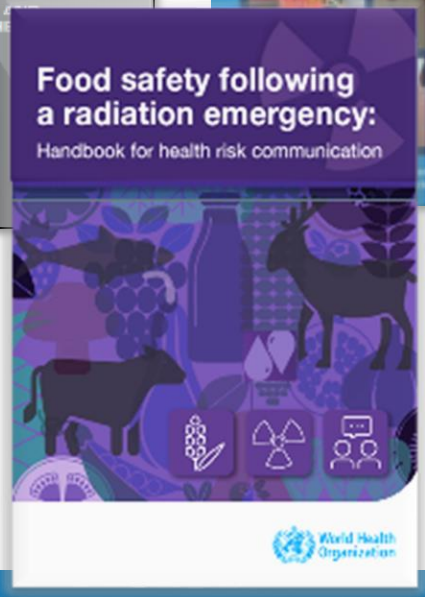












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Training Courses on Medical Response to Radiological and Nuclear Emergencies

- WHO-CDC-China National Training Course on Medical Response to Radiological and Nuclear Emergencies – Hainan, China (Oct 2019)
  - Attended by more than 60 medical specialists from 31 provinces
  - Included in the scope main principles of diagnosis and clinical management of over-exposure to ionizing radiation, e.g. acute radiation syndrome, local injuries, internal contamination, as well as psycho-social effects management and risk communication
- WHO-EURO National Training Course on Early Warning and Response to CBRN events in Ankara, Turkey (Jul 2020)
  - Jointly with MoH, with participation of TAEK, civil defence, law enforcement, and other sectors
  - Held via videoconference
  - Included a table-top exercise

WHO REMPAN Webinars

Pre-COVID-pandemic – two webinars per year

- The 1st Webinar – March 2018 on public health impact of a nuclear detonation
- The 2nd Webinar – Sept 2018 on radiation and thyroid cancer
- The 3rd Webinar – Apr 2019 on Mental Health impact of nuclear emergencies
- The 4th Webinar – Nov 2019 on Hospital Preparedness for RN emergencies

Since 2020 (pandemic period)

- Two joint webinars were organized with NEA/OECD on lessons of COVID for radiation emergencies (summer 2020
- Webinar-launch of the MHPSS Framework – Nov 2020 (video)
- Webinar on Fukushima 10th anniversary – 23 March 2021 (video)
- Webinar on Chernobyl 35th anniversary – 26 April 2021 (video)
- Joint WHO-IAEA webinar on medical follow-up – April 2021 (video)
- Joint WHO-IAEA webinar on medical response – 19 May 2021 (video)

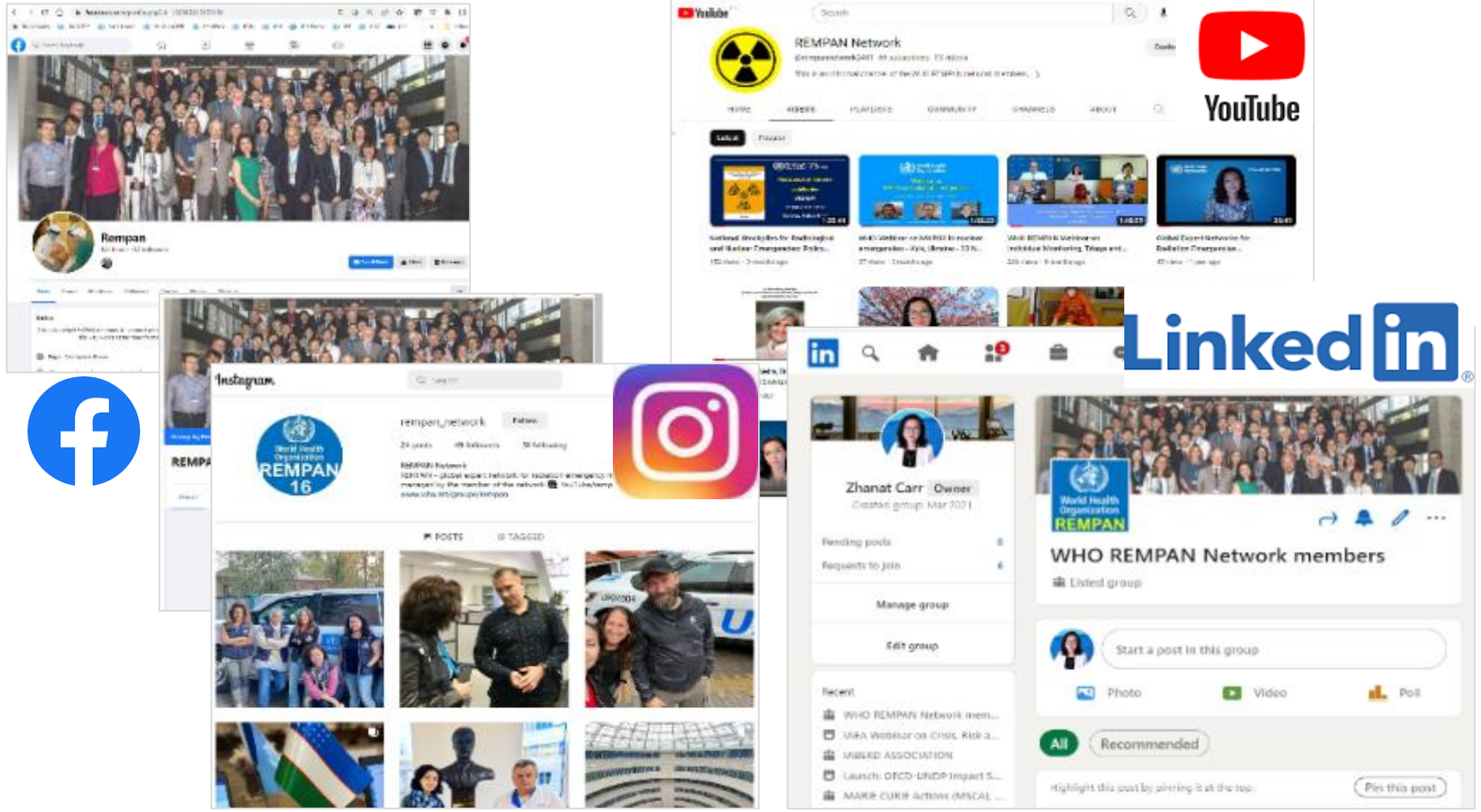
Support to Ukraine:

- Webinar on first response, decon, triage – June 2022
- Webinar on clinical management of ARS – August 2022
- Webinar on national stockpiles development – January 2023

REMPAN e-Newsletters

https://www.who.int/groups/rempan/

REMPAN in Social Media



Past REMPAN meetings

- 1st meetings in Paris, France – 1987
- 2nd meeting in Oak Ridge, TN, USA – 1988
- 3rd meeting in USSR – 1990
- 4th meeting in Germany – 1992
- 5th meeting in Paris, France – 1994
- 6th meeting in Hiroshima, Japan - 1995
- 7th meeting in Rio de Janeiro, Brazil – 1997
- 8th meeting in Chilton, UK – 2000
- 9th meeting in Moscow, Russia – 2002
- 10th meeting in St. Petersburg, Russia – 2004
- 11th meeting in Kiev, Ukraine – 2006
- 12th meeting in Buenos Aires, Argentina – 2008
- 13th meeting in Nagasaki, Japan – 2011
- 14th meeting in Wuerzburg, Germany – 2014
- 15th meeting in Geneva, Switzerland – 2017
- 16th meeting – ONLINE – 2021 (260 participants)
- 17th meeting – in hybrid mode , Seoul – Sept 2023

THE 15TH MEETING OF WHO REMPAN GLOBAL EXPERT NETWORK IN GENEVA, SWITZERLAND – 3 TO 5 JULY 2017

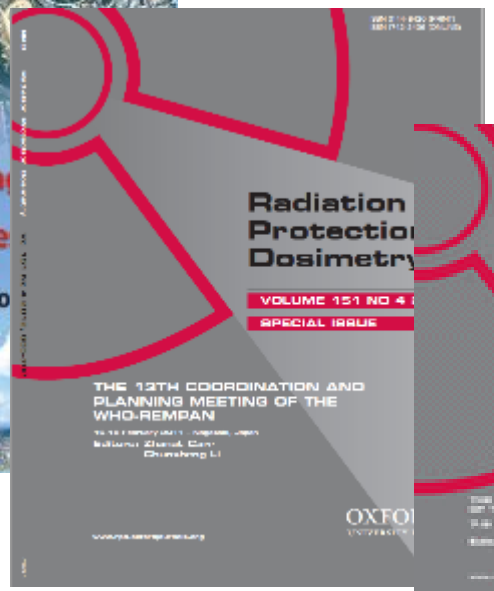
The 16th REMPAN meeting – 21-23 March 2021

Information sharing platform for the multi-specialty field of radiation emergency medicine

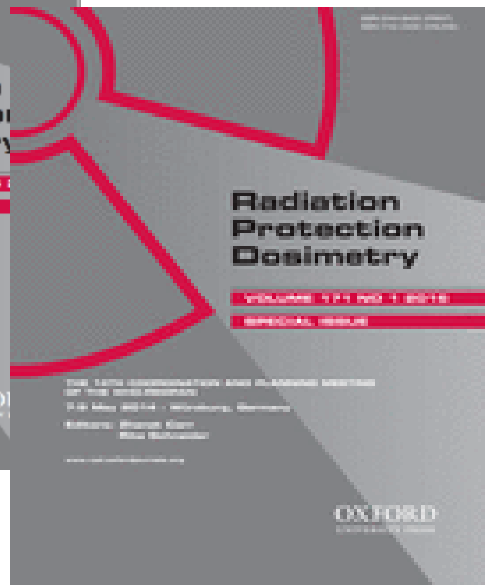
2009

2011

2014

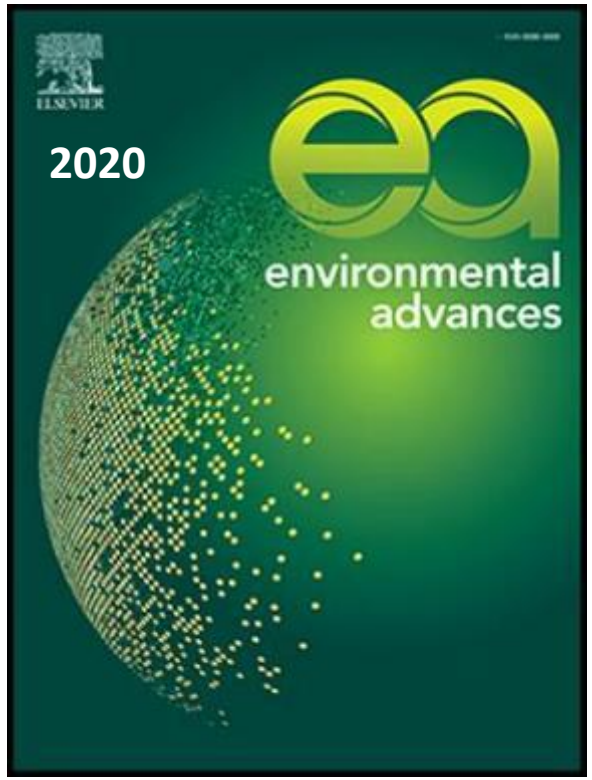


2017



https://www.sciencedirect.com/journal/environmental-advances/special-issue/10WBD1VTBDQ

2022 Open Access Proceedings of the 16th REMPAN meeting



REMPAN-17 meeting – 13-15 September, Seoul / Korea

Special Session – Health and Peace

World Health Organization

The 17th WHO REMPAN Coordination Meeting

Health and Peace

CHAIRS **D. Bazyka** and **Z. Carr**

- Radio-nuclear threats in Ukraine and health sector's preparedness to respond to a nuclear disaster
  D. Bazyka I NCRMC, Ukraine
- Public health concerns of a nuclear detonation
  B. Buddemeier I LLNL/DoE (by. video)
- Adapting national medical preparedness to the increased threat of a nuclear detonation in Europe
  M. Port I Institute of Radiobiology, Germany
- Preparedness for a mass-casualty CBRN event in European countries bordering with Ukaine
  C. Smallwood I WHO EURO
- The work of the WHO in Ukraine to build national capacity for CBRN em
  E. Bruni I WHO Ukraine
- Role of health professionals in preventing a nuclear war
  R. Mitchell I IPPNW
- Q&A


World Health Organization
The War in Ukraine: Selected Public Health Aspects
World Health Organization

The war in Ukraine: CBRN context

- From the beginning of the conflict, the has been a concern about CBRN threats, especially considering massive flow of information in grey media.
- From WHO's public health perspective these threats are taken seriously, as learned from the past conflicts in Syria, Iraq, and other humanitarian crises due to civilian unrest or military conflicts.
- While there is no evidence that such agents were deliberately used to target combatants or populations, active fighting in proximity to some industrial facilities leave large population at risk to potential chemical and nuclear technological hazards.

Situational Background – radio-nuclear threats

- Among 15 nuclear reactors located at 4 operational NPPs and decommissioned Chornobyl NPP, plus a research reactor in Kharkiv, Zaporizhzhia NPP is in direct proximity of the ongoing active combat.
- Although not caught in persistent conflict as in Zaporizhzhia region, the NPPs in Rivne and Khmelnitsky were also put at risk November 2022 when both NPPs suffered power outages due to missile attacks to the regions‘ power grid.
- The IAEA has noted numerous safety and security breaches at Chornobyl Exclusion zone when the war started
- A persisting concern related to the risk of use of tactical nuclear weapons or an improvised nuclear device.
- WHO continues to closely monitor the nuclear safety and security situation in Ukraine, liaising with partners, providing technical support with regards to health sector’s capacity building, managing potential health risks from technological hazards, conducting risk assessments, and supporting risk communication.

Russians threaten to blow up mined Zaporizhzhia Nuclear Power Plant – Energoatom

ROMAN PETRENKO – MONDAY, 8 AUGUST 2022, 11:49

According to Energoatom, the Russians are blackmailing the whole world, claiming they are mining the Zaporizhzhia Nuclear Power Plant (ZNPP) and ready to blow it up.

Source: Energoatom

Details: Energoatom claims that the head of the radiation, chemical and biological protection troops of the Russian armed forces, Major General Valerii

WHO Expert Mission to Review Preparedness – Sept 2022

World Health Organization

Objectives

- to review the preparedness of the health sector to a nuclear emergency;
- to identifying the areas of improvement and provide recommendations for strengthening health sector's capacity to respond to a nuclear emergency;
- to review the UN DSS contingency plan for safety of UN staff in the field and provide briefings for the staff in the field on the matters related to radiation risk and radiation protection in case of a nuclear emergency

Activities

- Mission to Ukraine 20-30 September 2022
- Filed visits to health facilities in Dnipro, Kyiv, and Rivne
- Meetings with health officials at the local and national levels
- Meeting with Health Cluster partners present in the field
- Briefings for the WHO and other UN organizations staff in the field

Mission to Ukraine: 20-30 Sept 2022

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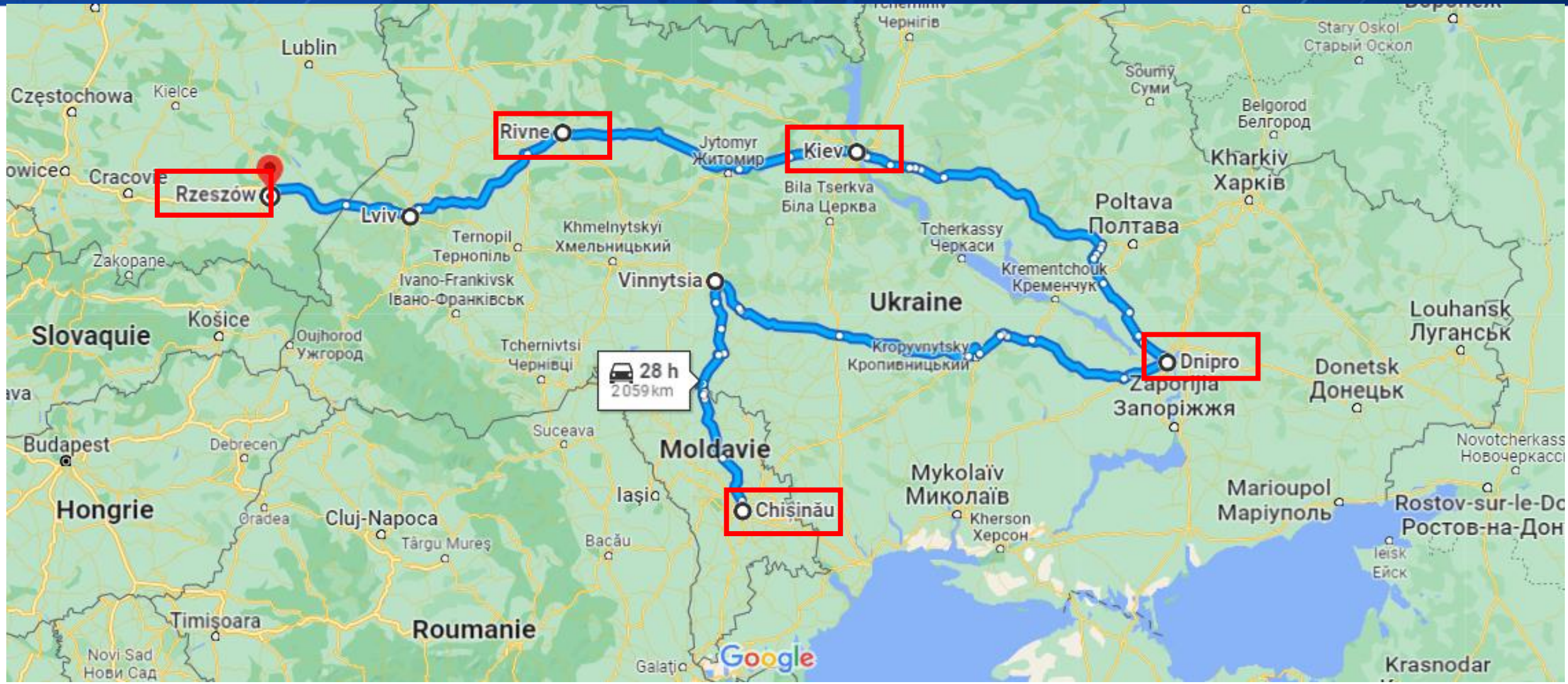


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Key Findings

- Technical expertise is well represented in various sectors – Chernobyl legacy
- There is a need for strengthening legislative basis for a coordinated preparedness and response to a nuclear emergency
- National operator covers preparedness in the 30 km zones around NPPs and will lead response to an emergency at an NPP
- For other situations, State emergency service (with hydrometeorological and civil protection services in its structure) is the lead national responding agency that has trained teams for dealing with CBRN hazards, to perform triage, decon, evacuation
- With regard to health sector, the responsibilities of environmental and individual monitoring are fragmented and spread between various institutions with most of them having a very low throughput capacity and outdated equipment.
- Functions related to food and drinking water safety monitoring, emergency medical services, transportation of casualties, management of psychological consequences, individual dosimetry, risk communication capacities were reviewed.
- Recommendations were provided to the MoH of Ukraine to support further discussions

Response to RN Threats in Ukraine: Core priorities

- **Partner Coordination**
  - IAEA updates on USIE are shared regularly with WHO staff involved in UKR response, IACRNE member agencies
  - EC DG-Sante, DG-ECHO, DG-ENER, HERCA
  - UN Country Teams, UN DSS, UN MDs, Health Cluster - more than 2000 humanitarian partners on Ukraine and neighbouring countries
  - REMPAN network of collaborating centers specialized in radiation emergency medicine

- **Public Communications**
  - WHO public communication material (dedicated website, Q&As, infographics)
  - Talking points for media briefings, responding to journalists' queries
  - Social listening

- **Obligations under International Health Regulations (IHR)**
  - IHR Communications to Member States through National IHR Focal Points and a secure Event Information Site (EIS) – readiness check for information sharing in case of an event.
  - NFPs exercises for radiation emergency scenario
- **Our duty of care:** WHO staff, consultants, contractors, dependents, other UN staff, health cluster partners
  - Awareness raising, SOPs in place, staff briefings on RN emergencies for Ukraine, neighbouring states COs, SHW and DCO
  - Staff KI supply and emergency kits for high-risk settings
  - Information toolkit for WRs and COs staff working in health emergencies (available on SharePoint)

Response to RN Threats in Ukraine: Technical support areas:

- **Public health preparedness and response**
  - surveillance, monitoring & risk assessment
  - PH actions (sheltering, ITB, evacuation; food and DW, access to health care)
- **Radiation detection and monitoring**
  - environment, food and drinking water safety monitoring by regional labs at centers of disease control
  - Individual monitoring (external, internal contamination) for staff and public
  - Decontamination, radiological and medical triage) at receiving hospitals
- **Hospital care**
  - Case management (radiation injuries, internal contamination, etc.)
  - Medical countermeasures & critical supplies : PPE, decon, radiation detection devices; specific and conventional pharmaceuticals, trauma kits, etc.
- **Risk comms and mental health** and psychosocial support
  - MHPSS framework translated to Ukrainian, MHPSS training developed for OpenWHO online platform
  - Stakeholder outreach/engagement via webinars, workshops
- **Procurement and supply**
  - Medical supply and devices (including KI tablets, decon kits, PPE etc.) shipped to Ukraine and distributed in the regions
  - Radiation detection and monitoring devices

Response to RN Threats in Ukraine: Health sector's capacity building

- Reviewing plans and arrangements for managing a mass-casualty type of event related to a nuclear detonation (e.g., protocol for managing and MedEvac of radiation injury patients, access to stockpiles, etc.)
- Technical tools for health professionals pertaining to response to radio-nuclear emergencies
  - policy advice on national stockpile development; hospital preparedness check list for radiation emergencies (in progress); tech. specifications for radiation detection devices / radiometers (in prep.)
  - Translating existing guidance to Ukrainian
- Educational webinars series launched (in English and Ukrainian language) and training courses for health workers on medical response to radiation emergencies (in 4 regions in 2022-23)
- OpenWHO free online learning platform contains a training course on managing mental health impact in emergencies now includes a module on nuclear emergencies: https://openwho.org/courses/mental-health-and-psychosocial-support-in-emergencies
- Developing, updating and translating to Ukrainian public communication materials on radiation emergency related topics (Q&As, infographics, etc.)

Ukraine Emergency: Supplies and equipment

World Health Organization

WHO donated more than 600K tons of medical supplies to the MoH, including life-saving medications and hospital equipment; ambulance vehicles, PPE to ensure the safety of the staff; decontamination equipment; dosimetry equipment for exposure detecting and monitoring, environmental sampling and laboratory analysis.

In consultation with the Ministry of Health, WHO ensures supplies donations are prioritized and based on current needs at each point in time. For example, with dynamic changes in the frontlines, WHO ensures to donors that they will reach the most needed for the greatest impact.

The support of logistics is tied closely to the training that is received by the medical departments of regions at risk, which substantiate capacity building and are critical to maintain momentum and continue preparedness activities vis-à-vis imminent threats. Both training and equipping goes hand in hand and started promptly since the war started up till this point in time.

Ukraine Health sector's capacity Building: training programmes

- First responder training course in Kyiv (Jun 2022)
- Training course for EMS staff and hospital ER staff of Rivne region (Feb 2023)
- Training course for EMS staff and hospital ER staff of Khmelnitsky region (Mar 2023)
- Training course for Zaporizhzhia region hospital staff (July 2023)
- Training course on hospital management for Moldova (Sept 2023)- in preparation with EURO, Moldova CO and MoH Belgium

Ukraine Emergency dedicated pages

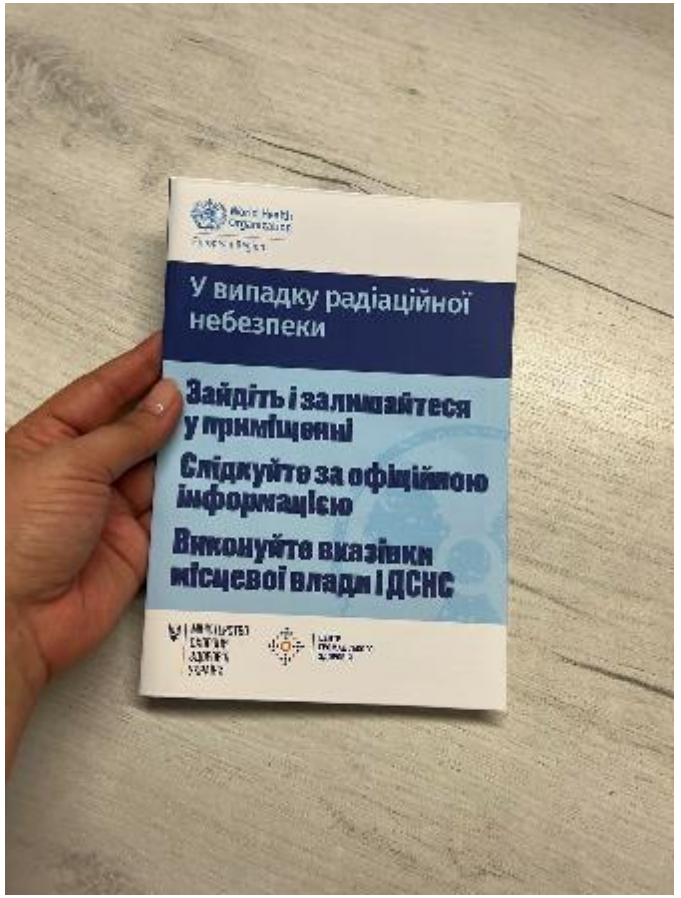
- https://www.who.int/emergencies/situations/ukraine-emergency
- https://www.ukraine.who.foundation/ ← an appeal to donors for 50M USD
- https://www.who.int/emergencies/situations/ukraine-emergency/medical-supply-donations

Risk Communication and Community Engagement activities

WHO engages actively with the Ukrainian public for the mitigation of possible exposures to chemical and radiation hazards. Risk communication and community engagement is also an integral part of informing the public in how to prevent and mitigation measures against health hazards.

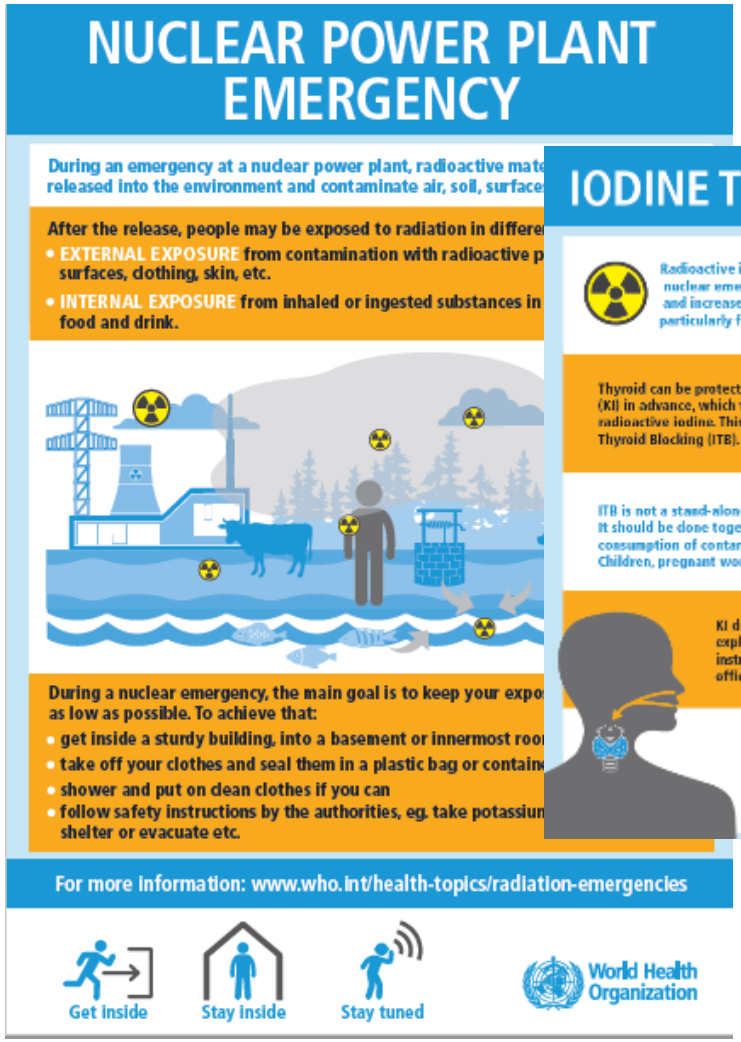
Booklet detailing simple to follow safety measures for chemical and radiation emergencies in Ukrainian have distributed more than 800K copies across the country, especially in areas affected by the conflict.

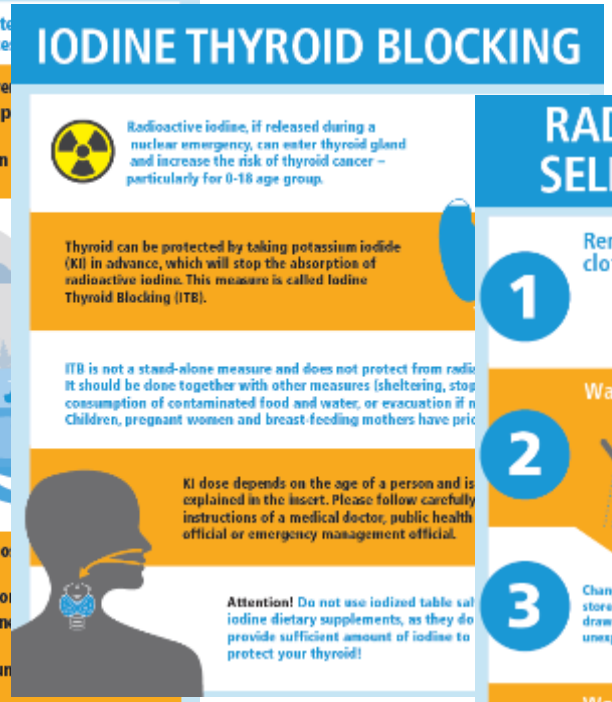
Another updated version of this booklet on request by the MOH reached another 350,000 recently in the Dnipropetrovsk and Zaporizhzhia regions as priority, and also for Odesa, Kherson, Mykolaiv, Kirovohrad and Poltava during August 2023 in the second distribution, of which there very well received with positive feedback.



Public information

World Health Organization





All infographics available also in Ukrainian

Dedicated website

https://www.who.int/emergencies/situations/ukraine-emergency/technological-hazards-and-health-risks-in-ukraine

WHO information resources on radiation emergency

World Health Organization

Q&As

- Radiation and Health (added on 4 March 2022)
- Radioactivity in food after a nuclear emergency (added on 4 March 2022)
- Use of potassium iodide for thyroid protection during nuclear or radiological emergencies (added on 7 March 2022)

Guidelines

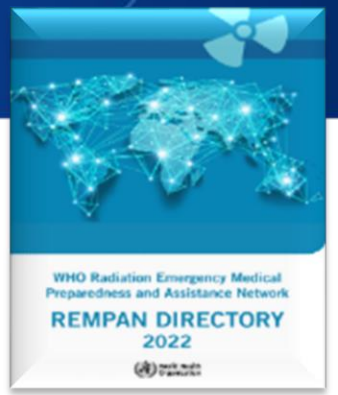
- Iodine thyroid blocking in case of a nuclear accident (WHO, 2017)
- Mental Health and Psychosocial support in case of radiation emergencies (WHO, 2020)
- TMT Handbook for triage, monitoring and treatment of persons exposed to radiation as a result of malevolent event

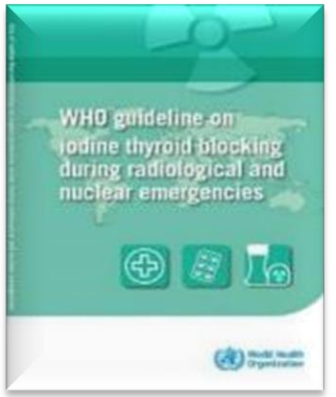
Networks

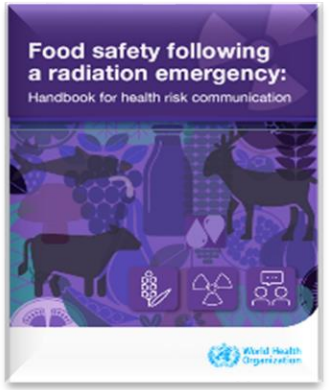
- Radiation Emergency Medical Preparedness and Response Network (REMPAN)
- WHO BioDoseNet – global network of biodosimetry laboratories

Joint guides

- Arrangements for preparedness for a nuclear or radiological emergency (FAO, IAEA, ILO, PAHO, OCHA, WHO, 2007)
- Manual for first responders to a radiological emergency (CTIF, IAEA, PAHO,WHO, 2006)
- Generic procedures for medical response during a nuclear or radiological emergency (IAEA, WHO, 2005)







New WHO-EURO project planned with European Commission, DG Sante Action

The objective of the action is to reinforce the prevention, preparedness and response capacities for all threats (chemical, biological and radio-nuclear threat) in Ukraine and neighbouring countries / countries participating in the EU4Health Programme through the coordination with other existing EU Mechanisms as for instance the Union Civil Protection Mechanism (UCPM) and in collaboration with the WHO.

World Health Organization

Expected results and impact

- EU unarmarked contribution: EUR 4.3M
- Planned length: 36 months.
- Start date: proposal under dvt
- Eligibility: Ukraine and neighbouring countries / countries participating in the EU4Health Programme

1. Prevention, preparedness and response plans for mass events, trauma and possible CBRN incidents;
2. Reinforcement of the surveillance and an early warning and response system for mass events for CBRN threats;
3. Strengthened emergency health operations of first line hospitals, emergency medical teams and medevac;
4. Improved health professionals capacities to address trauma, chemical, radio-nuclear events and healthcare acquired infections.

Objectives

a) support the national and cross-border prevention, preparedness and response capacities, including crisis coordination and inter-sectorial collaboration;

b) strengthen health information management by reinforcing surveillance and early warning and response system for possible CBRN events;

c) develop an efficient emergency care system, including the hospital and emergency medical team capacities for response to mass events;

d) reinforce prevention, detection and control of prevalent infectious diseases, ensuring continuation of essential programmes for health promotion, prevention and healthcare for priority causes of illness and death.

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Source: EuroMomo https://www.euromomo.eu/graphs-and-maps/

SUMMARY

- The perceived risk of health emergencies caused by the deliberate or accidental exposure to chemical or radiation hazards has increased in the WHO European Region. Despite established existing preparedness in the region, this increase in perceived risk reveals significant coordination, capacity and capability gaps. Preparedness and response to these risks requires extensive collaboration between local, national and international stakeholders.
- WHO mandate and its leadership in global health matters puts it in the best position to promote international cooperation for strengthening health sector's preparedness and response to radiation emergencies. In many parts of the world the level of national preparedness remains low.
- WHO supports countries to develop such sustainable capacities through policies, technical guidelines and tools, and international norms and standards.
- In doing so, WHO works with its partners. REMPAN network is an important asset providing technical support to WHO work in the area of medical response to radiological and nuclear emergencies.
- In addition to providing technical assistance WHO, REMPAN facilitates exchange of information and collaboration between the stakeholders and shares it with the global professional community

Thank you!

World Health Organization