Public Health Consequences of Radiation Emergencies: WHO Agenda

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19-23 October 2016 – Vienna, Austria
Outline

- WHO and its mandate in EPR, legal tools and frameworks to implement WHO mandate
- WHO actions to support MS in building national capacities to respond
- Main public health issues in emergency preparedness and response
- The role of health authorities in addressing public health concerns in the aftermath of radiation emergencies
- Summary
More than 7000 people work for the World Health Organization (WHO) in its 157 country offices, six regional offices and at the Headquarters in Geneva, Switzerland.

The World Health Assembly (WHA): the WHO's supreme decision-making body. Meets once a year, gathering representatives of WHO's 194 Member States. Produces WHA Resolutions.
WHO's core functions

1. Articulate ethical and evidence-based policy positions
2. Setting norms and standards, and promoting and monitoring their implementation
3. Shaping the research agenda, and stimulating the generation, translation and dissemination of valuable knowledge
4. Providing technical support, catalysing change and developing sustainable institutional capacity
5. Monitoring the health situation and assessing health trends
6. Providing leadership on matters critical to health and engaging in partnerships where joint action is needed
WHO Programmatic Priorities

• Advancing universal health coverage

• Achieving the health-related Millennium Development Goals Addressing the challenge of noncommunicable diseases and mental health

• Implementing the International Health Regulations

• Increasing access to essential, high-quality and affordable medical products

• Reducing health inequities by addressing the social, economic and environmental determinants of health
WHO Radiation Program: scope

- Existing natural exposures
- Planned exposures
- Exposures from past accidents
- Non-Ionizing (EMF, UV)
- Emergency preparedness & response
Legal Framework for RN Emergency Response

• The WHO Constitution, 1948
• Relevant World Health Assembly Resolutions
• Two Conventions on Early Notification and Assistance (1987)
• The International Health Regulations (IHR, 2005)
• Sendai Framework for disaster risk reduction in 2015-2030 with the central focus on health
IHR-2005 and Radiation Emergencies

- An international legal instrument, a law, sets provisions for
  - health surveillance (e.g. unknown origin outbreaks) in addition to radiological monitoring
  - notification through National Focal Points in 194 State Parties
  - secure information sharing on Event Information Site (EIS)
  - ongoing monitoring of travel and trade measures

- IHR expert roster includes radiation emergency management experts

- Mechanism and tools for assessment, monitoring, and assistance on strengthening preparedness and response capacity of Member States

- Website: [http://www.who.int/ihr/en/](http://www.who.int/ihr/en/)
IHR (2005): a multi-hazards framework to assess core national capacities

IHR (2005): Capacity to detect, assess, report and respond to all Public Health Events of International Concern

- Human infectious pathogens
- Zoonotic pathogens / Food safety
- Radio nuclear hazards
- Chemical hazards

Legislation and Policy | Coordination | Surveillance | Response | Preparedness | Risk Comm. | Human Resources | Laboratory
IHR core capacities implementation status, 2013
(158 reporting countries)

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<tr>
<th>Core Capacities</th>
<th>Implementation Status (%)</th>
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<tr>
<td>Legislation</td>
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<td>Coordination</td>
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<td>Surveillance</td>
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<td>Zoonosis</td>
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## Global IHR Capacity: RN emergency

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More than 6000 participants from 187 countries, governments, international organizations, and civil society came to Sendai, Japan on 14-18 March 2015.


- WHO was one of the organisers
- New Sendai Framework for Action in post-2015 period was adopted
- The central focus is on human health
Sendai Framework 2015-2030: seven global targets

1. a substantial reduction in global disaster mortality;

2. a substantial reduction in numbers of affected people;

3. a reduction in economic losses in relation to global GDP;

4. substantial reduction in disaster damage to critical infrastructure and disruption of basic services, including health and education facilities;

5. an increase in the number of countries with national and local disaster risk reduction strategies by 2020;

6. enhanced international cooperation;

7. and increased access to multi-hazard early warning systems and disaster risk information and assessments.
Follow up actions: Member States

• Identify remaining gaps and carry out national implementation plans
• Strengthen intersectoral and multisectoral coordination and collaboration among and within States Parties
• Mobilize technical and financial support for building core public health capacities and ensure full implementation of IHR and Sendai Framework
• Set up systems for regional support for strengthening and maintaining the national core capacities for preparedness and response
Follow up actions - WHO

- Consultations with WHO Regional Offices and MS on the IHR implementation requirements for States Parties
- Provide tools to support MS' implementation of the IHR and capacity building
- Convening of regional/subregional stakeholder workshops to review and match country needs with potential support and interested donors
- Convening hazard-specific capacity building regional workshops
  - Colombo, Sri Lanka – March 2013
  - Bangkok, Thailand – Oct 2013
  - Cairo, Egypt – Oct 2014
  - Seoul, Rep of Korea – March, 2015
- Strengthening partnerships
Partnerships

- IACRNE member organizations under Emergency Conventions
- National health authorities
- Relevant IOs, agencies, programs, and NGOs (UNSCEAR, NEA/OECD, ICRP, IRPA, IFRC, etc.)
- Global Health Security Advisory Group (WG on Medical Countermeasures against RN threats) of health authorities of the G-7 states, plus Mexico
- Regional stakeholders (EC, HERCA, NERIS, RENEB, EURADOS, etc.)
- Professional societies and associations (IRPA, IOMP, HP, etc.)
- WHO collaborating centers and expert networks
WHO's Relevant Emergency Networks

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

- **WHO BioDoseNet** (since 2007)
  - Global Network of Biodosimetry Laboratories
  - some 90 members world-wide ([rempan@who.int](mailto:rempan@who.int))

- **WHO/FAO INFOSAN** – 28 national food safety authorities
  
  - [http://www.who.int/foodsafety/areas_work/infosan/en/](http://www.who.int/foodsafety/areas_work/infosan/en/)

- **Public health emergency operations centres network (EOC-NET)** 38 MS
  
WHO functions in radiation emergency response

- Public health risk assessment and response
- Emergency medical response (diagnosis and treatment)
- Biological and clinical dosimetry
- Long term follow-up of exposed populations
- Control of food, drinking water safety
- Advise on trade and travel
- Mitigation of mental health impact
- Risk communication
Medical and PH Response Guidance
Health care programmes and medical monitoring (2006)

Three general categories of follow-up were considered:

- Clinical care for highly exposed (>1 Gy WB, or >5 Gy local) resulting in deterministic health effects (e.g. skin burns, cataracts) should receive necessary medical care

- Medical follow-up /screening of the asymptomatic populations

- Follow-up for “epidemiological” purposes
Medical follow-up for asymptomatic populations (2006)

- For most radiation-exposed populations monitoring is primarily directed towards detection of neoplasms.
- Diagnostics tests for early detection of adverse health outcomes depending on main exposure type and pathway, radionuclide involved, etc.
- A subcategory of medical monitoring is a follow-up of potentially “sensitive subgroups”, e.g. children, pregnant or breast-feeding women.
Screening programs for asymptomatic populations (2013)

Several factors can help ensure that such screening is beneficial:

- Disease risk should be identified in the most vulnerable population or population subgroups.
- An accurate practical screening tool should be available.
- Early detection of the disease must lead to improved survival.
- Effective treatment of the disease should be available.
- The benefits of the screening must be greater than any potential harm (individual and public health dimensions).
Screening programs for asymptomatic populations (2013)

- The goal is to detect disease as early as possible, with the assumption that earlier diagnosis will result in reduced morbidity and mortality.

- Health monitoring and surveillance can provide reassurance in response to the population’s concerns about health risks.

- The challenge lays in identification of populations at risk and whether screening will produce more benefits than potential harm (unjustified invasive interventions, psychological stress, ethical considerations stigmatization, social impact).

- Epidemiological studies primarily serve the benefit of advance in science but not the benefit of affected individuals.
Thyroid screening in Fukushima

- A thyroid ultrasound screening program is ongoing in Fukushima prefecture as a part of the Health Risk Management Survey (FMU).

- This screening for thyroid disease is likely to lead to an increase in the incidence of thyroid diseases due to earlier detection of non-symptomatic cases (screening effect).

- A screening effect has been reported in the Adult Health Study (AHS) of the Japanese survivors of the atomic bombings of Hiroshima and Nagasaki, among whom the reported thyroid cancer incidence in the AHS was higher than in the full LSS cohort due to a screening effect. This is also consistent with the findings of Chernobyl studies.
Psycho-social implications of long-term follow-up programs

- Psychosocial impact was found to be the largest after Chernobyl accident (WHO, 2006)

- In addition to socio-economic impact of the accident itself exacerbated by disintegration of Soviet Union, and lack of timely, reliable and clear information, the fact of people undergoing a long-term medical monitoring, have contributed to the over-all anxiety and psychological stress in the affected population.

- Although, medical follow-up provided some reassurance and linked to small social benefits, being officially considered as a "Chernobyl victim" reinforced the stigmatization and affected people's lives
Psycho-social and ethical implications of long-term follow-up programs

- Fukushima population is reported to be reluctant to respond to the requests of interviews and invitations to medical check-up.

- The population exhibits a high level of anxiety and chronic stress and a certain social stigma is attached to residents of affected areas.

- Screening effect and over-diagnosis present an ethical dilemma on medical follow-up.

- Today, there is no agreed criteria for justifying medical follow-up for over-exposed persons, especially at low-doses.
Mental health and psychosocial support in emergencies

The WHO Department of Mental Health emphasizes that the number of persons exposed to extreme stressors is large and that exposure to extreme stressors is a risk factor for mental health and social problems. The WHO’s work on mental health in emergencies focuses mostly on resource-poor countries, where most populations exposed to natural disasters, disease outbreaks, and military conflict.

- Ebola outbreak response
- Syrian refugees crisis

http://www.who.int/mental_health/emergencies/en/
Mental health and psychosocial support in emergencies

Mental health and psychosocial support in ebola virus disease outbreaks: a guide for public health programme planners
2015

mhGAP Humanitarian Intervention Guide (mhGAP-HIG)
2015

Facilitation Manual: Psychological First Aid during Ebola Virus Disease Outbreaks
2014

Psychological First Aid for Ebola Virus Disease Outbreak
2014

Psychological first aid: facilitator’s manual for orienting field workers
2014

Mental and social aspects of health of populations exposed to chemical weapons: an overview
pdf, 149kb
2013

Building back better: sustainable mental health care after emergencies
2013

mhGAP module assessment and management of conditions specifically related to stress
2013

WHO guidelines on conditions specifically related to stress
2013

IASC Reference group mental health and psychosocial assessment guide
pdf, 1.22Mb
2012

Assessing mental health and psychosocial needs and resources - toolkit for humanitarian settings
2012
Stakeholders' Scissors in EPR

A scale of non-radiological consequences (mental health, psycho-social, ethical, economical, etc.) for health

A scale of radiological consequences for health

Stakeholders with a mandate on mental health and social aspects

Resources spent to address radiological consequences and radiation protection

Resources spent to address mental health, risk communication, etc.

# of stakeholders with mandates on radiation emergency response (NCAs, regulators, operators, meteo, environmental and food safety, defence, transport, trade, law-enforcement and customs, etc.)
Addressing social dimensions of emergencies: how?

- Why? Experience from disasters and lessons learnt from Chernobyl and Fukushima
  - UN SG report on humanitarian consequences of nuclear disasters

- What is the scope of the issue?
  - Social determinants of health, psycho-social impact, ethical and cultural aspects, risk communication, etc.

- Who are the stakeholders?
  - Health care providers, radiation protection experts, sociologists, psychologists, anthropologists, NGOs, affected communities, etc.

- What are the solutions?
  - Advocacy and awareness raising among key stakeholders
  - Linking with the disaster risk reduction community and building on their experience
  - A road-map towards a stronger system of emergency preparedness and response
Food for Thought

• The solution may lay within a new conceptual framework which will take into account both the needs of radiological protection and public health aspects of EPR, including ethical and cultural values, social, psychological, and mental health aspects.

• This should be done before crisis, by an organization that has a relevant mandate, expertise, and direct access to health sector in member states

• Health authorities should play important role in decision making in planning for response and during crisis management
Development of WHO Guidelines

A WHO guideline - any document developed by the World Health Organization containing recommendations for clinical practice or PH policy

- Guidelines under development:
  - Public health response to radiation emergencies (target - end-2015)
  - Revision of 1999 guidelines on KI thyroid blocking (2014-2015)

- WHO handbook:
  http://www.who.int/kms/guidelines_review_committee/en/
REMPAN Internal Contamination WG

Informal WG, established in Sept 2014 including

- Health Canada, Ottawa, Canada
- Centers for Disease Control and Prevention, Atlanta, USA
- Public Health England, Chilton, UK
- Institute de Radioprotection et de Sûreté Nucléaire, France
- Federal Medical Biophysical Center, Moscow, Russia
- National Institute of Radiological Science, Chiba, Japan
- CIEMAT, Madrid, Spain
- CEA, Fontenay-aux-Roses, France
- Institute of Radiation Protection and Dosimetry, Rio de Janeiro, Brazil
- ARPANSA, Melbourne, Australia
- NIRP, China CDC, Beijing, China
- IAEA as an observer
Proposed areas for R&D

- Children Monitoring and Dose Assessment
- Medical Management of internal contamination
- Manuals/check lists for population monitoring
- Training
- Inter-comparison exercises
- Chair: Chunsheng Li (Health Canada)

Photo:
The 1st face-to-face meeting of the Internal Contamination WS
23 April 2015 – Bruges, Belgium
REMPAN e-Newsletters

Sign up with REMPAN list-serve: rempan@who.int

http://www.rempan.ukw.de/aktuelles/who-rempan-e-newsletter.html
WHO BioDoseNet – global network for biodosimetry

2006 | 2007 | 2008 | 2009 | 2010 | 2013 | 2015

- EPR-BioDose conference
- REMPAN Survey
- Geneva consultation
- Identifying labs and building BDN
- 1st BDN meeting – Hanover, NH, USA
- Asian BDN meeting – Japan
- BDN capacity survey
- Web-based scoring exercise
- ShipEx-1 joint exercise
- 2nd BDN meeting – France, 2010
- Secure BDN website
- Revision of IAEA’s TR 405
- 1st BDN Inter-comparison study
- BDN-RENEB Inter-comparison
- 3rd BDN meeting – Leiden, 2013
- 4th BDN meeting – Hanover, US, Oct 2015
The 4th Coordination Meeting of WHO BioDoseNet

Hanover, NH, USA
04 October, 2015
Global biodosimetry laboratories network for radiation emergencies
Summary

- WHO provides technical support to regional and national capacity building programs and does this in partnerships with key stakeholders and WHO expert networks.

- RN emergencies require inter-sectoral response and coordination:
  - NCAs, health, environment, transport, disaster response sector, etc.
  - All-level coordination (local, regional, national and international).

- Lessons on managing public health consequences of natural disasters and other emergencies can be applied to RN EPR, links to other sectors need to be strengthened.

- Existing EPR system based on radiological protection principles and values, does not explicitly take into account ethical, psycho-social, cultural values, social determinants of health, community resilience and engagement. There is a need to develop a framework that will address non-radiological issues and will support decision-making in planning for and responding to RN emergencies.
Thank you!