World Health Organization

WHO Agenda on Public Health Preparedness and Response to Radiation Emergencies

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WHO, Geneva Switzerland

International Academic Conference on Radiation Health Risk Management
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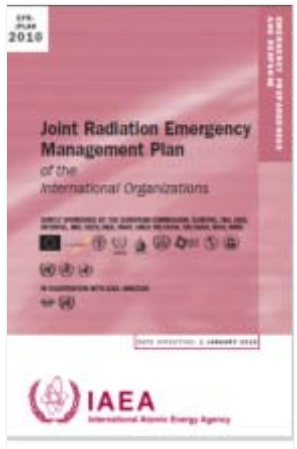
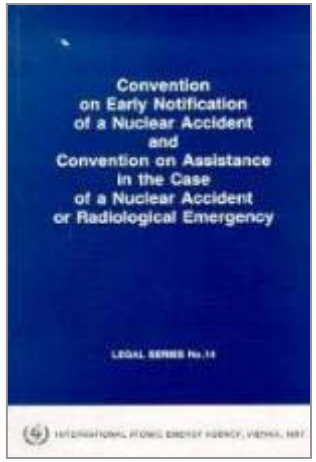
Outline

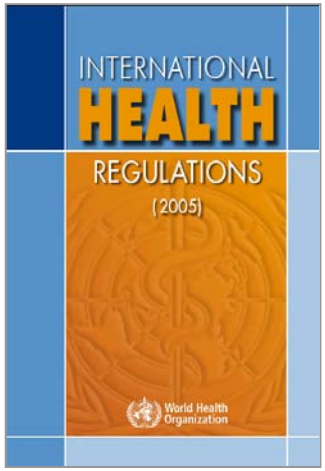
- Basis for WHO's mandate to support health sector preparedness and response to radiation emergencies
  - WHO emergency response arrangements
- Short term response of WHO to Fukushima Daiichi NPP accident and public health lessons learnt
- WHO's assessments of Fukushima health risks
- Global Impact of the accident on public health sector preparedness to radiation emergencies and WHO global actions to assist countries in strengthening their national capacities:
  - IHR (2005) implementation plan
  - New technical tools development

Framework for RN Emergency Response

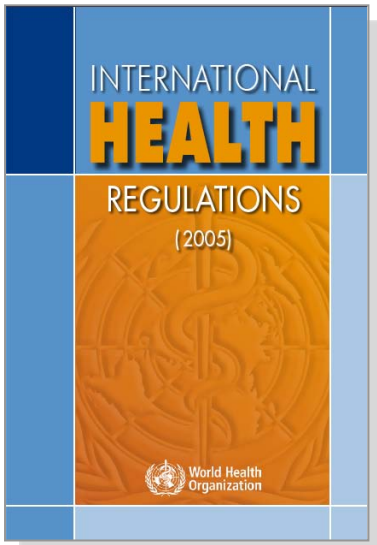
- **WHO Constitution 1948**
- **Two Conventions on Early Notification and Assistance (1987)**
  - **Joint Radiation Emergency Management Plan of the International Organizations**
  - **IACRNE membership**
- **International Health Regulations – IHR (2005), an international legal instrument**
- **World Health Assembly Resolutions WHA55.16, 59.22, 65.17**







IHR-2005 and Radiation Emergencies



Since 2007, a complementary notification to the Early Notification Convention, and provides for:

- Health surveillance (e.g. unknown origin outbreaks)
- Event notification through National Focal Points (NFPs) of 196 State Parties
- Secure information sharing on Event Information Site among NFPs network
- Ongoing monitoring of travel and trade measures
- Mechanism and tools for assessment, monitoring, and for assistance on strengthening emergency preparedness capacity of Member States

- **IHR requires to establish national core capacities by 2012 (deadline now extended till 2014)**
- **IHR expert roster includes radiation emergency experts**

IHR National Core Capacities

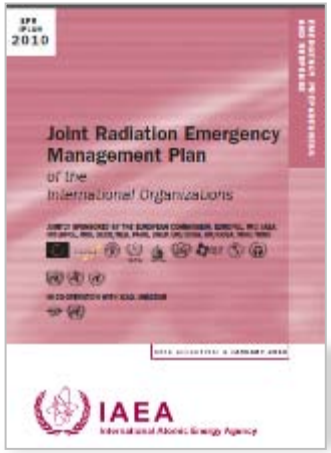
- 8 Core capacities
  - Legislation and Policy
  - Coordination
  - Surveillance
  - Response
  - Preparedness
  - Risk Communications
  - Human Resources
  - Laboratory
- 3 levels
  - National
  - Intermediate
  - Peripheral/Community

- **Potential Hazards**
  - Biological
    - Infectious
    - Zoonosis
    - Food safety
  - Chemical
  - Radiological and nuclear

- Events at **Points of Entry**

WHO key tasks according to the JPlan (2013):

- To provide advice and assistance on:
  - Public health surveillance and monitoring
  - Risk assessment and interventions to protect human health (including food and drinking water restrictions; access to health care services, acquisition/distribution of pharmaceuticals, etc.)
  - Diagnosis and treatment of radiation injuries and internal contamination
  - Biological and clinical dosimetry
  - Mitigation of psychological impact
  - Control of food and feed
  - Long-term follow-up programs



- To provide information on matters pertaining to human health

WHO's Relevant Emergency Networks

- WHO REMPAN network (since 1987)
  - Radiation Emergency Medical Preparedness and Assistance Network, 40+ centers world wide
    http://www.who.int/ionizing_radiation/a_e/rempan/en/
- WHO BioDoseNet (since 2007)
  - network of 60+ biodosimetry laboratories

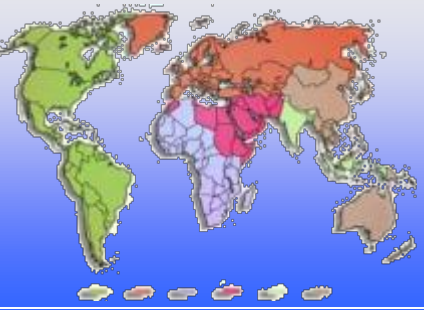
  http://www.who.int/ionizing_radiation/a_e/biodosenet/en/
- WHO/FAO INFOSAN network (since 2004)
  - International Food Safety Authorities Network of food safety focal points of MoH

Emergency Management at WHO

- **Based on all-hazard approach to threat assessment and risk management applying four principles: *timeliness, consistency, technical excellence, accountability***
- **Built on regional and country capacities for detection, investigation and response to any events that put human health at risk regardless of the event's nature**
  - **Country Offices (CO) supports capacity building and preparedness activities**
  - **Regional Offices (RO) facilitate 24/7 emergency contacts for IHR NFPs in MS**
  - **For radiation emergency events, HQ provides technical support to ROs and COs**

Event management: Identify, Assess, Assist, Inform

States Parties
WHO and UN



Others sources

Formal reports

Disseminate information

Verification

Initial screening & triage

Event risk assessment

Manage the risk

REMPAN

and other technical partners

Assist Respond

Informal / Unofficial information

WHO response to Fukushima Daiichi NPP accident

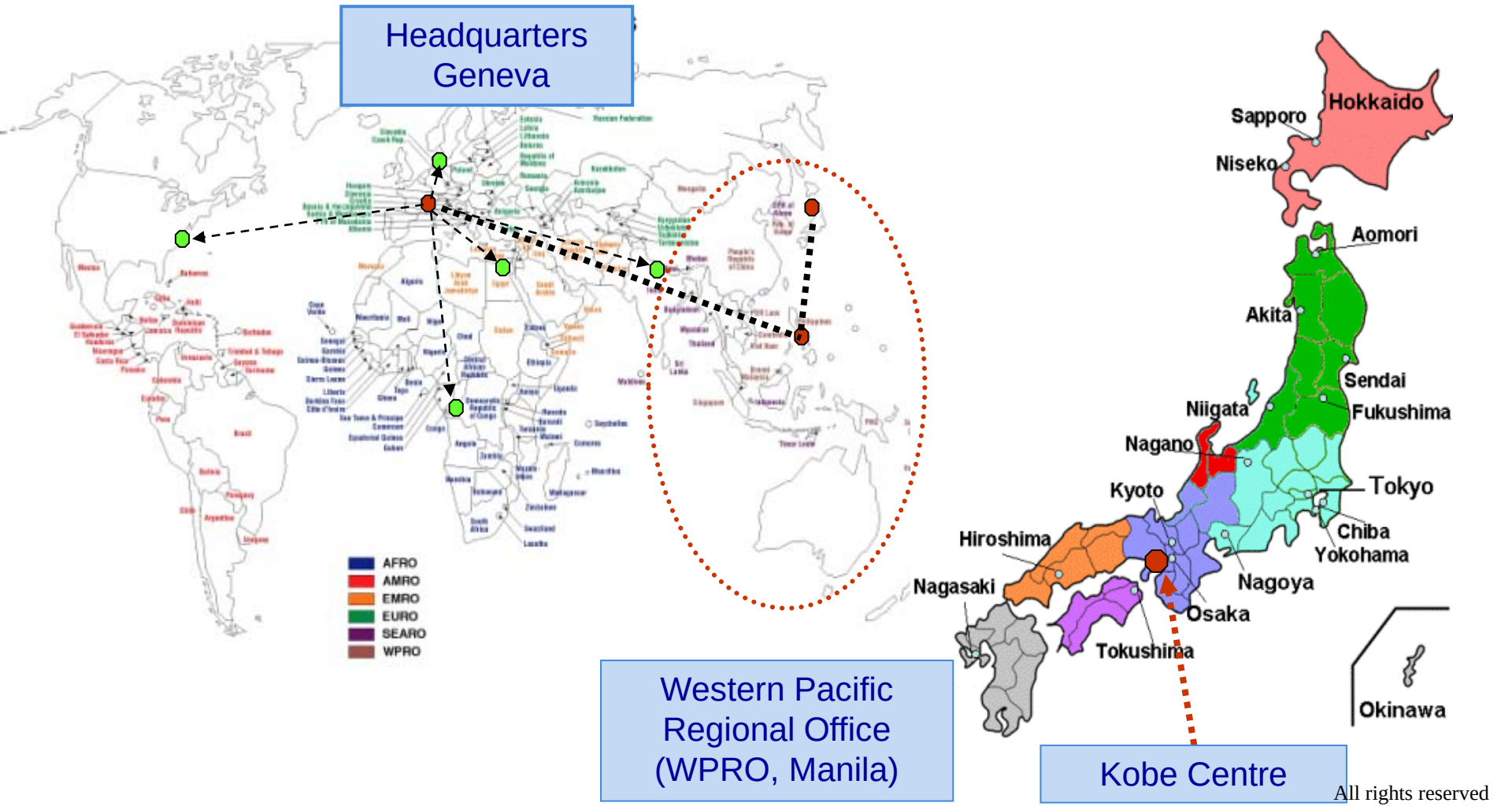
IHR communication for Fukushima Daiichi NPP accident

- **On March 11 2011, the Ministry of Health, Labour and Welfare of Japan notified about the explosion event in Fukushima Daiichi Nuclear Power Plant through the National IHR Focal Point within a few hours after the event occurred**
- **WHO immediately communicated the event to all the Member States in the region through our National IHR Focal Points**

IHR considerations

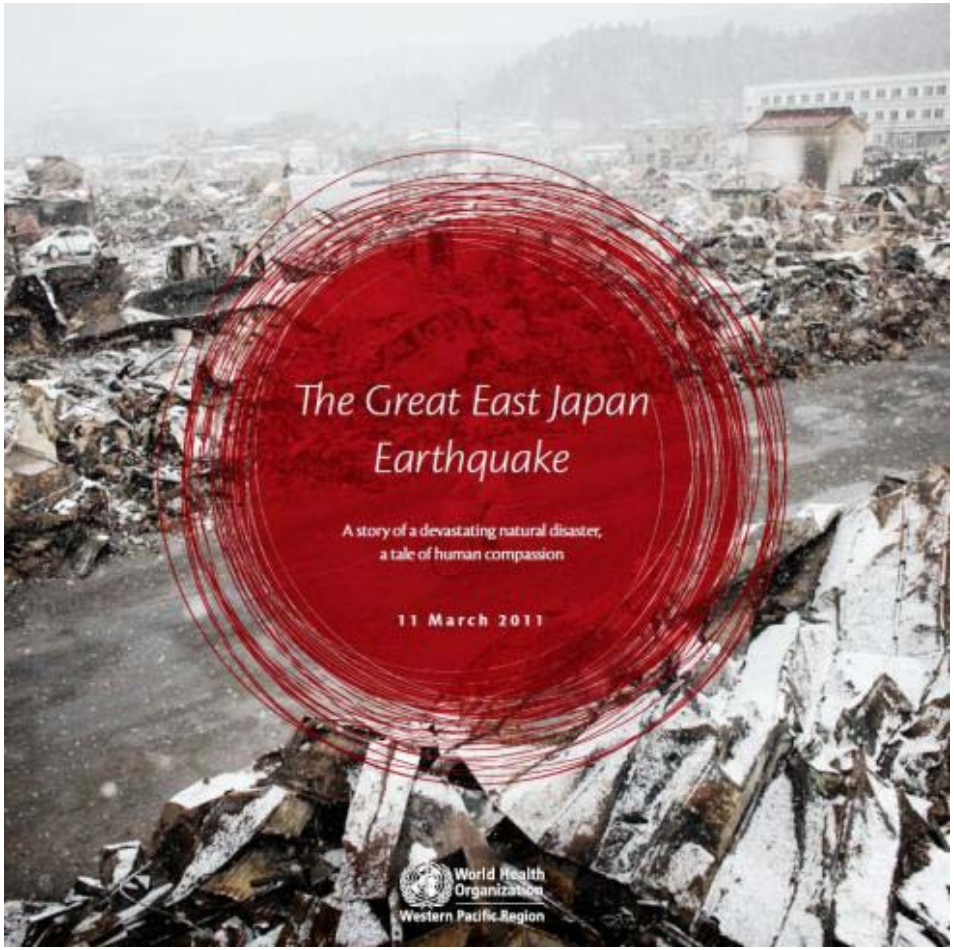
- **This was the first radiation emergency to generate real international concern since the IHR entered into force, thus re-igniting the interest in implementing IHR for non-infectious hazards.**
- **The event certainly falls within the scope of a number of IHR requirements and articles**
- **Event did meet the criteria for *notification* (Annex 2; serious, unusual, potential for spread and interference with travel and trade) but was not determined to be a PHEIC because:**
  - **Public health risk was limited geographically**
  - **National capacity to monitor risk and manage the event was present**
  - **No public health interventions were recommended for countries other than Japan (i.e. no need for temporary recommendations under IHR)**

WHO Response to Fukushima accident



Western Pacific Regional Office Report

- Published for the 1st anniversary of the event
- Detailed the loss and damage to the human life and health due to the earthquake and tsunami
- Provides a detailed account of public health interventions and lessons learnt
- Available on the web



http://www.wpro.who.int/publications/9789290615682/en/index.html

WHO Strategic Health Operations Center

WHO short-term response actions to Daiichi NPP crisis

- Immediately activated WHO emergency response plan
- Continuously monitored situation (ENAC, WPRO, Kobe, media…)
- Engaged relevant WHO technical programs (Food Safety, Children Health, Mental Health, etc.) and expert networks (REMPAN, INFOSAN) to assess health risks and provide advice on public health measures
- Provided technical support to national authorities (food, water, travel, transport, trade, mental health, public information…)
- Provided information to public, governments, media through a range of public messaging means (a dedicated website, media statements, press conferences, Fact Sheets and Q&As, social networks - Facebook, Twitter, etc.)

Requests from other states and international community

- Travel Advisory
  - Safety of travel to Japan, China, nearby areas
  - Border control measures
  - Screening of passengers; aircraft; cargo; ships
- Technical advice on interventions and risk assessment
  - Evacuation, sheltering, KI use, and precautionary measures
  - Interpretation of monitoring data and radiation protection limits/values
- Food and drinking water safety
  - Management of imported foods from Japan
  - Information on the actions put in place to prevent the sale/export of contaminated foods
  - Information on the Codex guideline level for radionuclides in food
- Risk communication and psychological impact management

Partnerships

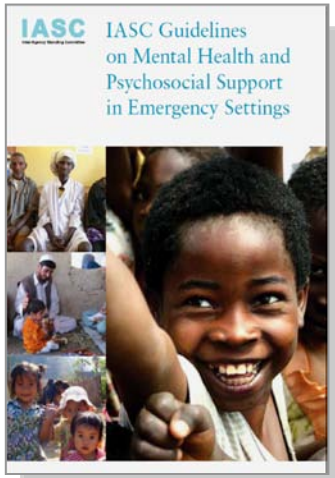
- IACRNE platform proved efficient for inter-agency information sharing and coordination
- Bilateral cooperation on specific technical areas
  - Liaison officer at the IAEA for two weeks in April
  - WMO and CTBTO on exposure monitoring and forecast
  - FAO on food safety issues
  - ICAO and IAEA on travel and transport safety
  - UN DSS on the issue of UN staff stationed in Japan
  - regular teleconferencing with EC/DG SANCO
- Information sharing with GHSAG (G7 states MoH communication platform for EPR and international implications of CBRN health emergencies)
- WHO's technical expert and communication networks (REMPAN, INFOSAN, PAGNet)

Food Safety Monitoring after Fukushima

- **WHO received data from Japan through International Food Safety Authorities Network (INFOSAN) on radioactivity measurements done in various prefectures and for various food types**
  - **More than 125,000 samples were included in the WHO database during 1st year since the accident;**
  - **national authorities continue food safety monitoring until today**
- **WHO monitored information sources for food control measures implemented by other countries**
  - **Some 20 countries, plus EU implemented various control measures on Japanese foods being imported into their countries**

Risk Communication and Mental Health

- The experience from Chernobyl accident proved psychological impact is substantial
- Lack of clear, consistent information creates anxiety and aggravates psychological impact of nuclear accidents
- Public may attribute physical symptoms of fear and stress (nausea, palpitations, hyperventilation, sweating, tremors, etc.) as an evidence of radiation illness



- Communicating risk to the affected target groups, such as emergency workers, evacuees, parents, etc. and conveying clear and reassuring messages is a key intervention to prevent negative mental health impact of a radiation emergency
- WHO recommended improving availability and access to community mental health services in the disaster-affected areas of Japan.

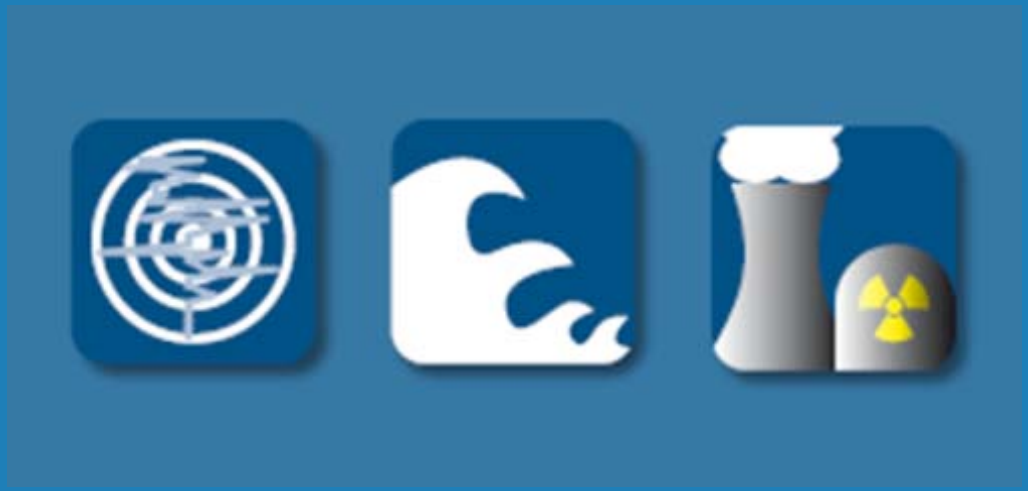
Lessons learnt

- Radiation emergencies require inter-sectoral response and coordination
- Existing int. arrangements proved efficient for coordination with partners inside and outside the UN system
- Ensuring maximum level of independence and transparency in assessing, managing and communicating radiation risks is crucial for WHO
- Access to technical expertise is instrumental for timely action and advice
- Established communication networks (INFOSAN, PAGNet) are important for rapid dissemination of information
- Importance of providing timely and accurate information
  - To inform decision-making *(e.g. travel, trade)*
  - To prevent risky reactions *(e.g. potassium iodide)*
  - To allay unnecessary fears *(e.g. travel, breastfeeding)*
  - To promote healthy behaviours *(e.g. pregnancy)*
- Social networks is an increasingly important communication tool

Identified Issues

- Health authorities functions in response to a radiation emergency are not explicitly and sufficiently defined
- Clear evidence-based guidelines are needed for practical implementation of public health interventions in radiation emergencies (e.g. evacuation, KI administration, sheltering, access to health care services, etc.)
- Rapid health risk assessment tool is needed to assist health officials' decision making and enable them to interpret and make use of available information
- Practical recommendations on public health interventions and decision making support, including those on control of contaminated foodstuffs and drinking water
- Guidance on crisis communication and public information strategies and structure built in the overall response planning, as a key requirement for psychological impact mitigation

WHO assessment of health risk resulting from Fukushima Daiichi NPP



Health Risk Assessment – why?

- **To fulfil WHO's role and responsibilities under the Joint Plan**
- **To provide information for Member States and the public**
- **To identify needs and priorities for public health action including health surveillance and long-term epidemiological studies**

Health Risk Assessment Approach

Problem Formulation

Hazard Identification

Review key research to identify any potential health problems that an agent can cause

Exposure Assessment

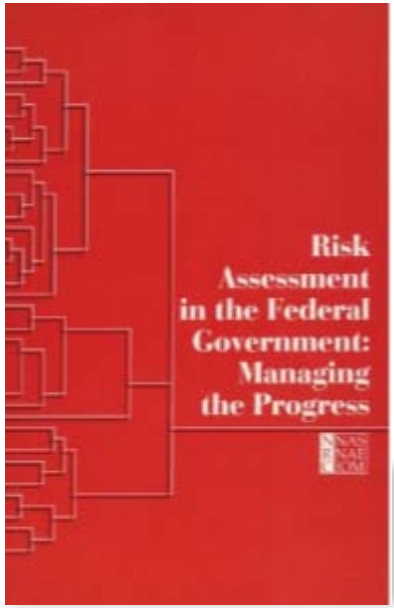
Determine the amount, duration and pattern of exposure to the agent

Exposure-Response Assessment

Estimate how much of the agent it would take to cause varying degrees of health effects that could lead to illnesses

Risk Characterization

Assess the risk for the agent to cause cancer or other illnesses in the general population



(NAS, 1983)

Dose Assessment
International Expert Panel

- **International Panel established by WHO to conduct an initial assessment of radiation exposure of populations inside and outside Japan – June 2011**
- **Independent scientific experts from UK (HPA), Russia (IRH), Germany (BfS), Japan (NIRS, NIPH), USA**
- **Representatives from WHO, IAEA and FAO**
- **Observers**
  - **UNSCEAR**
  - **the Government of Japan**

Dose Assessment
Milestones

- June-July 2011: WHO established the International Expert Panel
- August-September 2011: The panel collected available data up to September 2011 and began to analyse the relevant input data and to perform the dose assessments
- October-December 2011: The panel reviewed and discussed the results and worked on the development of a preliminary dose assessment report
- January-April 2012: the preliminary report was compiled, reviewed by the panel of experts and finalized by WHO for publication
- 23 May 2012: publication of the report

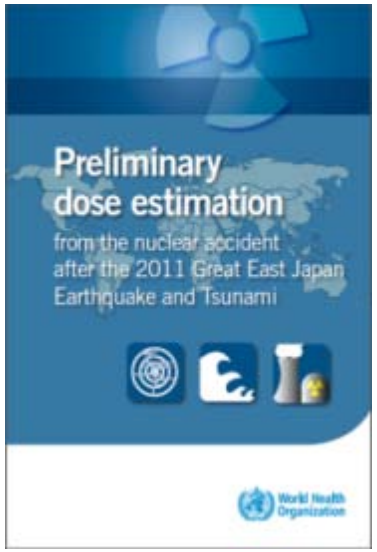

Planning Meeting / Vienna, 30 June


Working Meeting / Geneva, 5-6 Sept


Review Meeting / Geneva, 13-14 Oct.

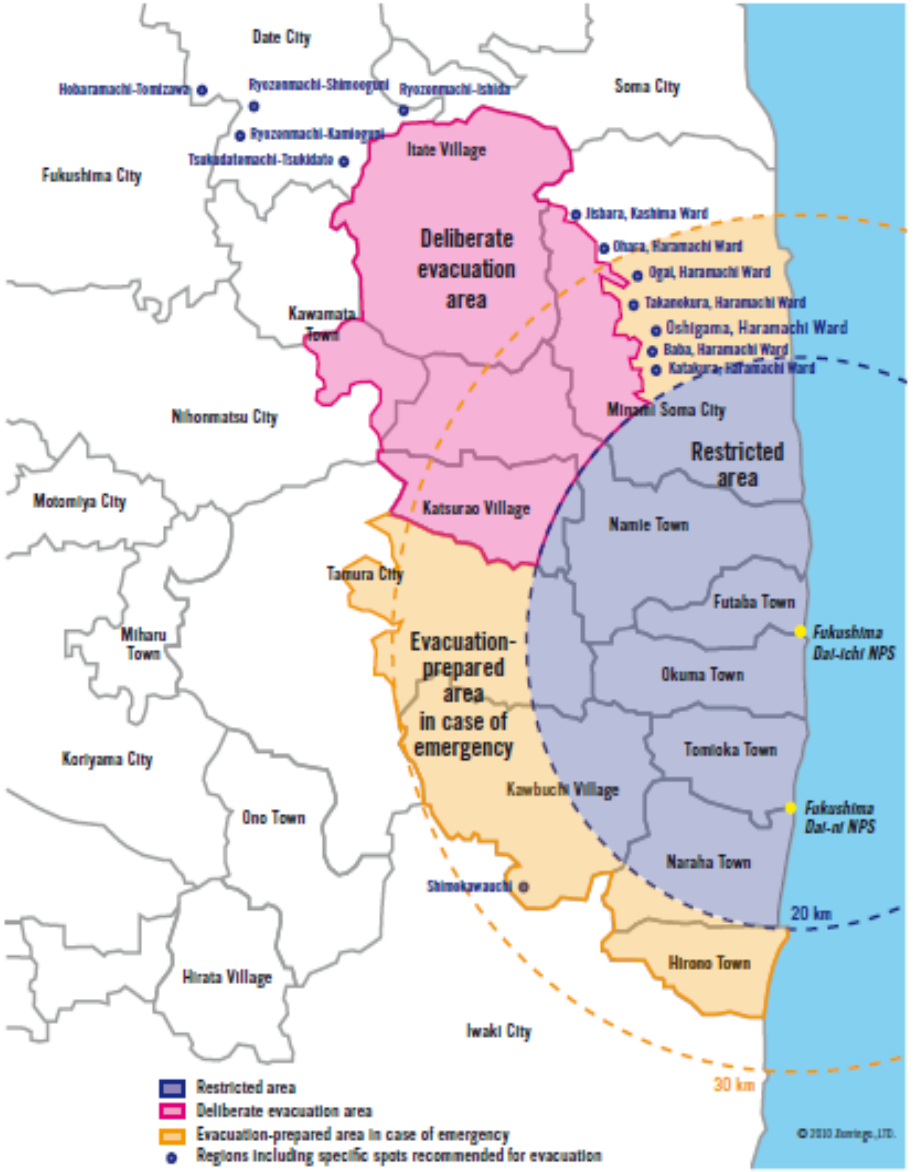
WHO's Fukushima Preliminary Dose Assessment Report

- Developed by an International Expert Panel
- Published in May 2012 and is available in PDF on the web
- Estimates for exposure of populations in Japan and around the world in the 1st yr. after the accident
- Based on data collected and made publicly available by the Gov of Japan up to mid-September 2011 and, for doses outside Japan, on computer simulations
- Uses conservative assumptions
- Serves as a basis for the WHO Fukushima Health Risk Assessment report (2013)
- For more information about the report findings and methods used, see FAQ at http://www.who.int/ionizing_radiation/pub_meet/faqs_dose_estimation/en/index.html



Scope

- **Dose assessment for the general public for the first year following the accident**
- **Assessed for different age groups in different locations**
  - **Locations in Fukushima Prefecture (more affected)**
  - **The rest of Fukushima prefecture (less affected)**
  - **Other prefectures in Japan**
  - **Countries neighboring Japan**
  - **around the world**



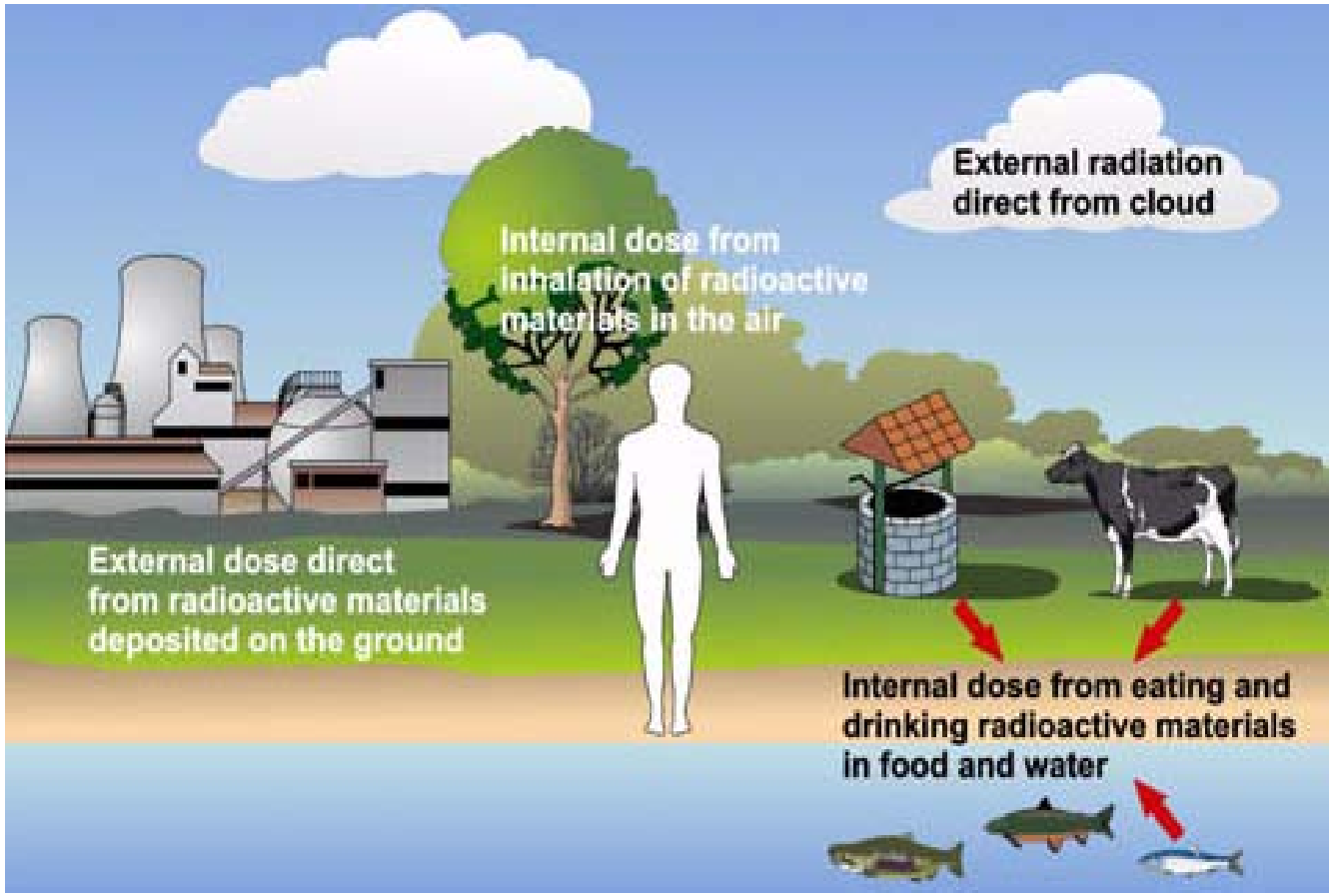
Source: Adapted from http://www.meti.go.jp/english/shinrai/nuclear/roadmap/pdf/evacuation_map_111125.pdf (reproduced with permission).

Dosimetric endpoints

- **Effective doses and equivalent doses to the thyroid for the first year after the accident for:**
  - **1 year old infants, 10 year old children and 20 year old adults.**
  - **6 month old infants considered for intake of drinking tap water used to make infant milk from formula.**
  - **Fetus and breast-fed infant not separately calculated but considered/discussed in the text.**

These age groups provide a sufficient level of detail to characterize radiological impact with consideration of younger, more sensitive population

Assessed exposure pathways



IAEA report on Environmental consequences of the Chernobyl accident and their remediation: twenty years of experience (2006)

Assumptions

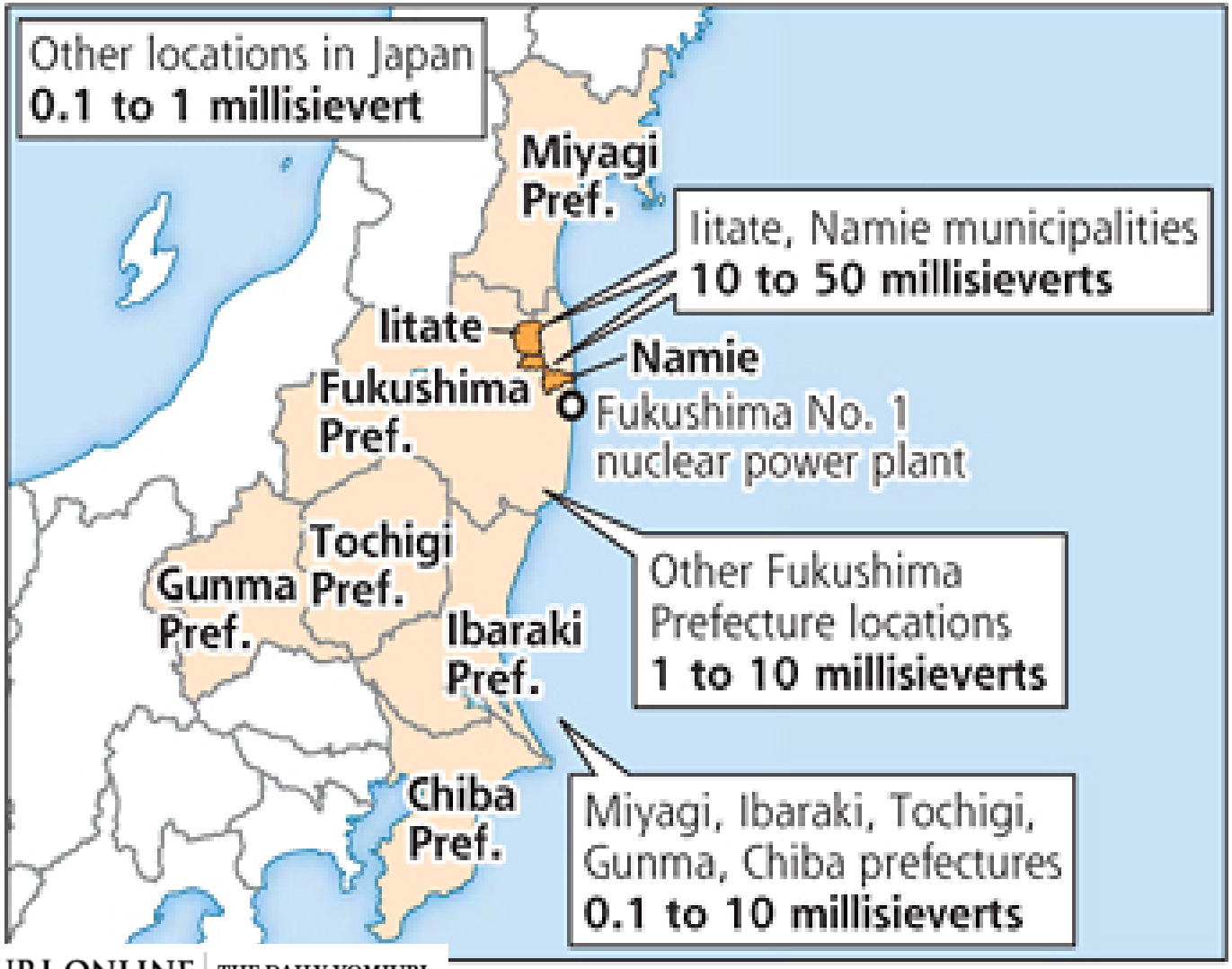
Given the preliminary nature of the assessment and the availability of data within the timeframe, a conservative approach with cautious assumptions was applied. Actual situation is much more complex (e.g. specific actions in different areas and to certain population groups, …)

- **Assumed on movement of people**
  - **< 20km radius: not considered (people evacuated)**
  - **20-30 km: not specific considerations for sheltering**
  - **For "Deliberate evacuation zone" assumed relocation at 4 months**
- **Assumed that KI tablets were not taken in Japan nor elsewhere**
- **Food and water restrictions: the assessment did not model the effect of restrictions which was implicit, since the assessment is based on monitoring results reported by the GoJ**
- **Fukushima prefecture residents consumed only locally produced food**
- **Radioactive decay between 'marketing' and consumption points was not considered, nor losses due to food processing and cooking**

Results: Effective doses

Location	Committed effective dose in first year following accident, mSv								
	Adult Dose band, key pathways to nearest 10%[2,3]			Child (10 years) Dose band, key pathways to nearest 10%[2,3]			Infant (1 year) Dose band, key pathways to nearest 10%[2,3]		
Fukushima prefecture, more affected locations (examples only, for location of measurements used see Figure 3)									
Futaba county, Namie town (committed dose from the first four months only[1])	10–50	External (groundshine) Inhalation	90% 10%	10–50	External (groundshine) Inhalation	90% 10%	10–50	External (groundshine) Inhalation	90% 10%
Soma county, Itate village (committed dose from the first four months only[1])	10–50	External (groundshine) Inhalation	90% 10%	10–50	External (groundshine) Inhalation Ingestion	80% 10% 10%	10–50	External (groundshine) Inhalation Ingestion	80% 10% 10%
Futaba county, Katsurao village (committed dose from the first four months only[1])	1–10	External (groundshine) Inhalation	80% 20%	1–10	External (groundshine) Inhalation Ingestion	80% 10% 10%	1–10	External (groundshine) Inhalation Ingestion	70% 20% 10%
Minami Soma city	1–10	External (groundshine) Inhalation	90% 10%	1–10	External (groundshine) Ingestion Inhalation	80% 10% 10%	1–10	External (groundshine) Ingestion Inhalation	80% 10% 10%
Futaba county, Naraha town	1–10	External (groundshine) Inhalation	80% 20%	1–10	External (groundshine) Ingestion Inhalation	80% 10% 10%	1–10	External (groundshine) Ingestion Inhalation	80% 10% 10%
Iwaki city	1–10	External (groundshine) Inhalation	90% 10%	1–10	External (groundshine) Ingestion	60% 40%	1–10	External (groundshine) Ingestion	60% 40%
Rest of Fukushima prefecture (less affected)	1–10	Ingestion External (groundshine)	50% 50%	1–10	Ingestion External (groundshine)	50% 50%	1–10	Ingestion External (groundshine)	80% 20%
Neighbouring Japanese prefectures[4]	0.1–10	External (groundshine) Ingestion	80% 20%	0.1–10	External (groundshine) Ingestion Inhalation	80% 10% 10%	0.1–10	External (groundshine) Ingestion	80% 20%
Rest of Japan[5]	0.1–1	Ingestion External (deposit)	70% 30%	0.1–1	Ingestion External (groundshine)	70% 30%	0.1–1	Ingestion External (groundshine)	80% 20%
Neighbouring countries[6]	<0.01	Ingestion External (groundshine)	80% 20%	<0.01	Ingestion External (groundshine)	80% 20%	<0.01	Ingestion External (groundshine)	80% 20%
Rest of the world	<0.01	Ingestion External (groundshine)	80% 20%	<0.01	Ingestion External (groundshine)	80% 20%	<0.01	Ingestion External (groundshine)	80% 20%

WHO preliminary radiation dose estimates after the Fukushima No. 1 nuclear plant crisis



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Results: Thyroid doses

Location	Committed equivalent dose to thyroid in first year following accident, mSv								
	Adult Dose band, key pathways to nearest 10%[2,3]			Child (10 years) Dose band, key pathways to nearest 10%[2,3]			Infant (1 year) Dose band, key pathways to nearest 10%[2,3]		
Fukushima prefecture, more affected locations (examples only, for location of measurements used see Figure 3)									
Futaba county, Namie town (committed dose from the first four months only[1])	10–100	Inhalation External (groundshine) Ingestion	50% 40% 10%	10–100	Inhalation External (groundshine) Ingestion	60% 30% 10%	100–200	Inhalation External (groundshine) Ingestion	50% 30% 20%
Soma county, Itate village (committed dose from the first four months only[1])	10–100	Inhalation External (groundshine) Ingestion	40% 40% 20%	10–100	Inhalation External (groundshine) Ingestion	50% 30% 20%	10–100	Inhalation Ingestion External (groundshine)	40% 40% 20%
Futaba county, Katsurao village (committed dose from the first four months only[1]),	10–100	Ingestion Inhalation External (groundshine)	40% 40% 30%	10–100	Ingestion Inhalation External (groundshine)	50% 30% 20%	10–100	Ingestion Inhalation External (groundshine)	60% 30% 10%
Minami Soma city	10–100	External (groundshine) Ingestion Inhalation	40% 40% 20%	10–100	Ingestion External (groundshine) Inhalation	50% 30% 20%	10–100	Ingestion External (groundshine) Inhalation	60% 20% 20%
Futaba county, Naraha town	10–100	Ingestion External (groundshine) Inhalation	40% 40% 20%	10–100	Ingestion External (groundshine) Inhalation	50% 30% 20%	10–100	Ingestion External (groundshine) Inhalation	70% 20% 10%
Iwaki city	1–10	Ingestion External (groundshine)	80% 20%	10–100	Ingestion External (groundshine) Inhalation	80% 10% 10%	10–100	Ingestion External (groundshine)	90% 10%
Rest of Fukushima prefecture (less affected)	1–10	Ingestion External (groundshine) Inhalation	80% 10% 10%	10–100	Ingestion External (groundshine)	90% 10%	10–100	Ingestion External (groundshine)	90% 10%
Neighbouring Japanese prefectures[4]	1–10	External (groundshine) Ingestion Inhalation	40% 30% 30%	1–10	Ingestion External (groundshine) Inhalation	40% 30% 30%	1–10	Ingestion External (groundshine) Inhalation	60% 20% 20%
Rest of Japan[5]	1–10	Ingestion External (groundshine)	90% 10%	1–10	Ingestion	100%	1–10	Ingestion	100%
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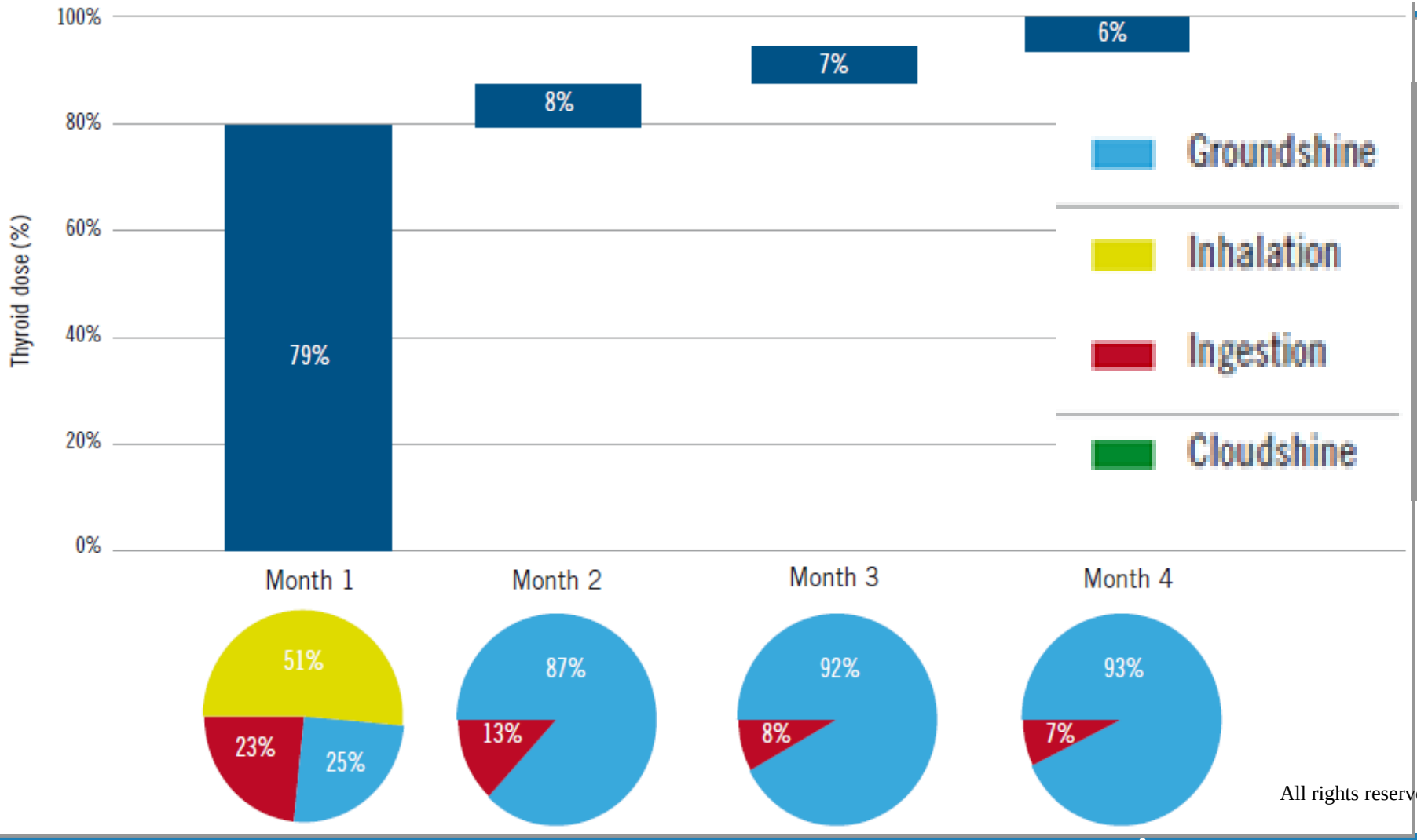
Rest of the world	<0.01	Ingestion Inhalation External (groundshine)	70% 20% 10%	<0.01	Ingestion Inhalation External (groundshine)	70% 20% 10%	<0.01	Ingestion Inhalation External (groundshine)	80% 10% 10%

Cumulative thyroid dose



Conclusions

- Effective doses outside Japan are very low
- Low effective doses are also estimated in much of Japan
- Higher doses are estimated in Fukushima prefecture, but in all cases effective doses are estimated to be less than 50 mSv
- The doses estimated in the example locations of Fukushima prefecture may be somewhat overestimated:
  - It has been assumed relocation of residents at 4 months (some were relocated earlier);
  - Other protective measures only partially taken into account, due to lack of more detailed information.
  - However, the dominant exposure pathways in these locations were inhalation and external exposure early after the incident.
- Comparison with human measurements gives confidence that the estimated results are not under-estimating the doses in Japan

http://www.who.int/ionizing_radiation/pub_meet/fukushima_dose_assessment/en/index.html

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Preliminary Dose Estimation from the nuclear accident after the 2011 Great East Japan Earthquake and Tsunami

May 2012 – This report provides information on the estimated radiation exposure of populations in Japan and around the world in the first year following the Fukushima accident. The report is based mainly on data collected and made publicly available by the Government of Japan up to mid-September 2011, as well as on computer simulations to assess doses outside Japan. The estimates were produced by an independent International Expert Panel convened by the World Health Organization (WHO). This report therefore consists of the collective views of independent experts. The Dose Assessment Report will inform the WHO Health Risk Assessment Expert Group that is currently working on an initial assessment of the health risks incurred by different populations. It is expected that this report will be published in summer 2012.

Read the report | Frequently asked questions | More on Food Safety

WHO Health Risk Assessment:
Risk Characterization

World Health Organization

Observers:

UNSCEAR

UNSCEAR

International Labour Organization

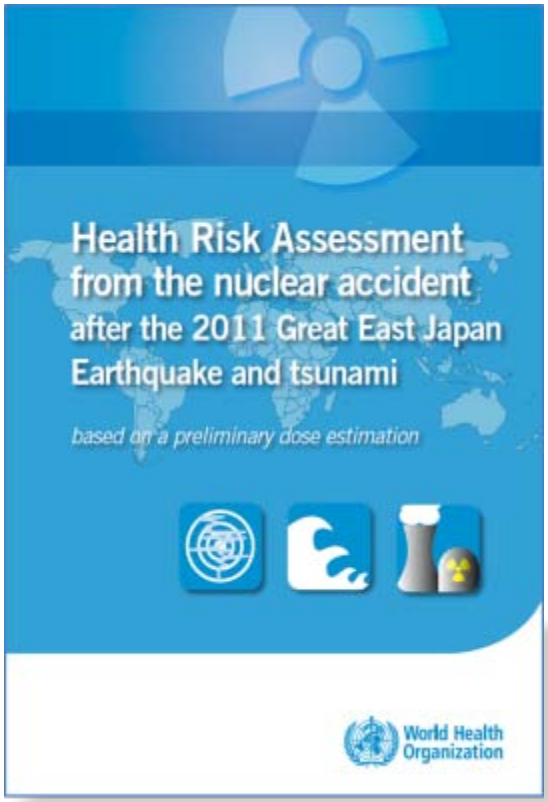
Health Risk Assessment Working Group
Milestones

- **December 2011: WHO established a HRA WG and convened 1st meeting to agree on working methods, dose response models, age groups, end points, work plan and timeline**
- **March 2012: 2nd HRA WG meeting discussed results, identified gaps and areas requiring refinement, reviewed the HRA report outline, agreed on next steps**
- **Report completed by end 2012**
- **Editing, formatting, proof reading – Jan-Feb, 2013**
- **Currently in publishing**

Geneva, 14-16 December 2011

Geneva, 23-24 March 2012

Health Risk Assessment report



- A comprehensive assessment of health risks for general public (adults, children and infants) in different geographic locations in Japan and in the rest of the world for certain cancer and non-cancer outcomes
- Uses life-time attributable risk as a measure of probability of developing certain health effects
- Also estimates health risks for emergency workers (based on occupational dosimetry done in Japan)
- Provides guidance on long-term management of health risk

Longer-Term Actions

- ***Sept 2011 Fukushima conference*** **concluded that the physical health impact of the radiation on the general public is likely to be limited. However, the social, psychological, and economic impact is expected to be considerable. Continued monitoring of the levels of radioactivity in the environment is necessary, so that informed decisions can be taken about various issues such as the extent to which populations can return to their homes.**
- **Monitoring of health of the affected population is on-going and WHO offers support for the international cooperation on Fukushima Health Management Survey in order to:**
  - **ensure credibility and transparency of the study**
  - **engage the network of relevant subject matter experts world-wide**
  - **use the experience on mitigation of mental health impact of major disasters in the past and support risk communication activities**

WHO global actions in support of countries national preparedness to radiation emergencies

2012 IHR Secretariat report to the WHA

Capacity/number of responses	Average capacity score and percentage of countries with a score greater than 75%[a]						
	Africa	The Americas	South-East Asia	Europe	Eastern Mediterranean	Western Pacific	Global
Number of responses	35	24	17	43	11	18	148[b]
Zoonotic events	59 (40)	77 (79)	74 (59)	88 (86)	84 (73)	83 (67)	77 (68)
Food safety events	45 (14)	68 (50)	67 (53)	90 (95)	65 (45)	77 (67)	70 (57)
Chemical events	20 (6)	42 (25)	44 (18)	68 (58)	33 (27)	49 (44)	45 (32)
Radiation emergencies	24 (11)	38 (29)	57 (35)	77 (74)	35 (18)	48 (39)	50 (39)

a – shown in brackets; b – 152 countries replied (see WHA65.17 for full report)

WHO Regional IHR Stakeholder meetings

- WHO South-East Asia Regional Office (SEARO):
  9 November 2012 in New Delhi, India

- WHO Eastern Mediterranean Regional Office (EMRO):
  12-15 November 2012 in Rabat, Morocco

- WHO Africa Regional Office (AFRO):
  26-29 November 2012 in Ouagadougou, Burkina Faso

  3-6 December 2012 in Lusaka, Zambia

  10-14 December 2012 in Yaoundé, Cameroon

- WHO European Regional Office (EURO):
  26-27 February 2013 in Luxembourg, Luxembourg

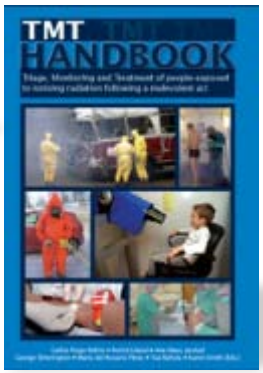
Strengthening Preparedness in MS

- Promoting international norms and standards, and monitoring of the implementation to support safe use of radiation, especially in health sector
- Support harmonization of emergency response criteria/protocols
  - Contribution and co-sponsorship of IAEA's requirements and standards (BSS, GS-R-2, GSG-2, EPR series, etc.)
  - Engaging WHO REMPAN and BioDoseNet networks to support capacity building through training and exercises
- Development of technical tools and guidelines for health sector
  - guidelines for PH response to radiation emergencies (2012-2013)
  - risk communication tool on radioactivity and food safety (2013)
  - revision of 1999 guidelines on KI thyroid blocking (2013)
  - Guidelines for clinical management of the acute radiation syndrome (2013-2014)

Existing relevant guides and recommendations

- **ICRP publications provide radiation protection justification for recommendations**
  - **ICRP-103 report**
  - **ICRP-109 report**
  - **ICRP-111 report**

- **IAEA publications provide basis for planning and criteria for emergency interventions:**
  - **BSS**
  - **GS-R-2**
  - **GS-G-2 / 2.1**
  - **EPR-Medical**
  - **Other**



- **Other publications, national guides and recommendations**

Range of PH interventions in emergency

- Sheltering, evacuation and health of evacuees
- Decontamination and triage
- KI distribution and admin.
- Risk assessment
- Health surveillance and monitoring
- Food & drinking water safety
- Risk/crisis communication
- Responder and emergency personnel safety
- PH and medical needs assessment
- Radiation injury diagnostics and treatment
- Biodosimetry lab services
- Health systems safety and surge capacity
- Pharmaceuticals stockpiles
- Continuity of public health programs, access to health services
- Identification of affected individuals
- Registry set up for affected persons and vulnerable categories of public
- Special populations needs and assistance
- Mass casualty / trauma / fatalities management
- Mortuary services
- Psychological support , mental health services
- Wastewater and solid-waste management/ disposal
- Animal rescue/control/ shelters
- Long-term community follow-up, return to normality

Development of Guidelines on Public Health Response to Radiation Emergencies

- Requested by MS in the aftermath of Fukushima accident in 2011
- Funds secured at the end of 2011 for the new project
- Experts identified and invited to contribute to the development of the new guidelines – 1st Q of 2012
- Global survey of MS needs carried out – 2nd Q of 2012
- 1st meeting – Geneva, June 2012
  - Identified the scope, methods of work, developed ToC and work plan
- Reference database being compiled, systematic reviews are carried out
- 2nd meeting – Oman, March 2013
- Target date – end 2013

McMaster University
Inspiring Innovation and Discovery

Formulate question

Select outcomes

Rate importance

Outcomes across studies

Create evidence profile with GRADEpro

Rate quality of evidence for each outcome

P
I
C
O

Outcome Critical

Outcome Critical

Outcome Important

Outcome Not important

Summary of findings & estimate of effect for each outcome

High
Moderate
Low
Very low

Grade down

1. Risk of bias
2. Inconsistency
3. Indirectness
4. Imprecision
5. Publication bias

Grade up

1. Large effect
2. Dose response
3. Opposing bias & Confounders

Systematic review

Guideline development

Guideline Development Group

Grade overall quality of evidence across outcomes based on lowest quality of ***critical*** outcomes

Grade recommendations

- For or against (direction) ↓↑
- Strong or conditional/weak (strength)

By considering balance of:

- ❑ Quality of evidence
- ❑ Balance benefits/harms
- ❑ Values and preferences

Revise if necessary by considering:

- ❑ Resource use (cost)

Guideline

Formulate Recommendations

- "We recommend using…"
- "We suggest using…"
- "We suggest not using…"
- "We recommend not using…"

Development of a Risk communication tool on radioactivity and food safety

- Started in 2012, a joint project of the Department of Public Health and Environment and Department of Food Safety at HQ
- Well-tailored targeted risk communication can help to reduce the health impact of radiation emergencies and promote food safety and food security

- The tool is intended to provide guidance to policy makers, national and local governments and health worker community

Photo: Nikkei Business (18 Apr 2011)

Risk communication tool on Radioactivity and Food Safety: milestones

- **In order to develop this tool, two expert meetings are organized to discuss risk communication in the aftermath of a radiological emergency, such as Chernobyl and Fukushima, with particular focus on radioactivity and food safety issues.**
  - **1st expert meeting - Geneva, Dec. 2012**
  - **2nd expert meeting – Geneva, 12-15 March, 2013**
- **To elicit stakeholder input for the development of the tool, interviews of focus groups in Japan and phone interviews of identified stakeholders in other countries are planned for the 1st Q of 2013.**

Conclusions

- As a global leader on health matters, WHO working towards assessing risks for human health resulting from accidents and strengthening preparedness of MS for radiation emergencies
  - existing international arrangements provide an efficient framework for such activities (both under Emergency conventions and IHR)
- Response to radiation emergencies requires close inter-sectoral coordination at all levels (international, regional, national, local)
  - IHR requires countries to have coordination mechanisms to be put in place between health authorities, competent authorities for radiation, food, water, environment, transport, points of entry, legal, law enforcement et al.
  - WHO offers support to countries to implement IHR and build capacities
- In managing radiation emergency response, communicating radiation risks is a crucial component (infrastructure and special training)
- WHO is determined to continue using lessons of pas accidents, when providing practical guidance for public health interventions.

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Thank you!
Arigato gozaimas!