EPR-Public Communications

2012

EMERGENCY PREPAREDNESS AND RESPONSE

Communication with the Public in a Nuclear or Radiological Emergency

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IAEA

International Atomic Energy Agency

IAEA SAFETY STANDARDS AND RELATED PUBLICATIONS

IAEA SAFETY STANDARDS

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Communication with the Public in a Nuclear or Radiological Emergency

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NUCLEAR OR RADIOLOGICAL EMERGENCY
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FOREWORD

The aim of this publication is to provide practical guidance for public information officers on the preparation for and response to a nuclear or radiological emergency, and to fulfil in part functions assigned to the IAEA in the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Assistance Convention), as well as meeting requirements stated in IAEA Safety Standards Series No. SF-1, Fundamental Safety Principles, and in IAEA Safety Standards No. GS-R-2, Preparedness and Response for a Nuclear or Radiological Emergency.

Under Article 5(a)(ii) of the Assistance Convention, one function of the IAEA is to collect and disseminate to States Parties and Member States information concerning methodologies, techniques and results of research relating to response to nuclear or radiological emergencies. IAEA Safety Standards Series No. GS-R-2 establishes the requirements for an adequate level of preparedness for and response to a nuclear or radiological emergency in any State, and specifies that “All practicable steps shall be taken to provide the public with useful, timely, truthful, consistent and appropriate information throughout a nuclear or radiological emergency” in the response phase. It also requires “responding to incorrect information and rumours; and responding to requests for information from the public and from the news and information media”.

This publication provides guidance in the form of action guides and information sheets that can be easily applied by a State to build a basic capability to respond to a nuclear or radiological emergency. This guidance should be adapted to fit the user State’s organizational arrangements, language, terminology, concept of operation and capabilities.

This publication is published as part of the IAEA’s Emergency Preparedness and Response series and complements the Manual for First Responders to a Radiological Emergency in the parts related to the tasks of public information officers. It takes account of the lessons learned from past emergencies, including the accident at TEPCO’s Fukushima Daiichi Nuclear Power Station in 2011, and from research, while ensuring consistency with IAEA Safety Standards Series No. GS-R-2.

The IAEA officer responsible for this publication was L. Berthelot of the Incident and Emergency Centre, Department of Nuclear Safety and Security.

EDITORIAL NOTE

CONTENTS

1. INTRODUCTION

1.1 BACKGROUND

Experience from nuclear and radiological (radiation)[1] emergencies highlights public communication as one of the most important challenges in emergency management. Sometimes, an event is not considered to be an emergency to experts or responders but is perceived very differently by the general public. Communicating effectively with the public about radiation emergencies is key to successful emergency management. It will help mitigate the risks, support the implementation of protective actions, and contribute to minimizing negative psychological impacts.

Effective public communication has been shown to encourage the smooth implementation of appropriate protective actions by people at risk and to reassure individuals who are not directly at risk by reducing rumours and fears. It can facilitate relief efforts and also maintain public trust and confidence in the organizations responsible for ensuring the welfare of the public.

Communicating with the public about radiation is challenging. It is important to remember, at all times, to communicate in plain language. Trust and availability of information are the key elements for risk communication.

In addition to local emergency services (e.g. local medical, law enforcement, and fire brigades), Public Information Officers (PIO) have the most important role in the early response to a radiation emergency. In order to successfully carry out that role, it is essential for the PIO to be prepared and trained before an emergency occurs.

1.2 OBJECTIVE

The objective of this publication is to provide practical guidance to those responsible for keeping the public and media informed and for coordinating all sources of official information to ensure a consistent message is being provided to the public before, during and after a radiation emergency.

To meet the objective, this publication:

- Describes how to prepare and train for emergency communications before a radiation emergency occurs.
- Explains the need for effective public communications in radiation emergencies.
- Provides communication principles and tools to assist PIOs in achieving effective communication during a radiation emergency and to help in mitigating its effects.

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[1] Nuclear and radiological emergencies are referred to as radiation emergencies throughout this publication. Radiation refers to ionizing radiation, which is defined in the list of definitions.

1.3 SCOPE

The guidance in this publication is applicable to the full range of potential radiation emergencies. It is not limited to what is commonly considered a “radiation emergency” such as the release of radioactive materials from a nuclear power plant (e.g. Chernobyl or Fukushima-Daiichi Nuclear Power Stations), or the loss or theft of a dangerous radioactive source (e.g. in Goiânia). The scope of this publication includes any radiation event to which the public might respond as if it were an emergency, regardless of how that event is technically categorized.

This publication briefly describes public communications in the decontamination and recovery phases but these areas are covered in more depth in other IAEA documentation [1]. For information on the International Nuclear and Radiological Event Scale (INES), reference should be made to the INES Manual [2].

It is recognized that different States have specific needs and procedures. This publication proposes guidance based on experience and best practices from lessons learned. The PIO using this guidance should always take into account the local and national communication culture and practices, legal background, function and responsibility of communicators, and role of regulators and operators when planning and communicating with the public.

This publication is consistent with the Safety Requirements No. GS-R-2 [3] and complements basic guidance on public communications provided in the Emergency Preparedness and Response (EPR) Series publications [4, 5, 6, 7]. Some key emergency response procedures from these publications are included here for ease of reference.

1.4 STRUCTURE

This publication has two sections. Section 1 includes the background, objective, scope, structure of the contents and guidance on how this publication should be used. Section 2 covers the basic information on the Incident Command System (ICS), the public information/communication organization, public communications roles and coordination during an emergency, budget requirements for public communications, and public communications planning and preparation for an emergency. The remainder of the publication is in the form of Action Guides, Information Sheets and Appendices that give guidance and advice to PIOs. A list of definitions is also included.

1.5 USE OF GUIDANCE

This publication provides guidance through the following Action Guides, Information Sheets and appendices:

- Public Communications Action Guides (PC-AG), which provide details on the general actions of the PIO operating within the ICS.
- Public Communications Information Sheets (PC-IS), which provide useful resources in a number of key areas to support the PIO to carry out the relevant actions in the Action Guides.
- Appendices with templates for holding statements, press releases, warnings, and internal communication logs.

Boxes “❑” are used in lists of steps to be taken or issues to consider/address in order to mark them as part of checklists.

It is expected that this publication will be employed mainly by PIOs.

While it is recommended to read the entire publication to gain a full understanding of the key aspects of public communication in radiation emergencies, it is not necessary to read all the parts in chronological order, rather the reader is encouraged to begin with a specific topic of interest. Examples, illustrations, and checklists are included to make the publication clear and useful.

The material in this publication should be integrated with the national and local arrangements in the State in which it will be used. This would include translating the material into the local language and revising it to be consistent with local terminology, response organizations and concepts of operation. Once the State specific material is completed, training should be performed and the response tested during drills and exercises.

The material in this publication does not aim to be a rigid template but rather a framework that needs to be integrated with the national and local needs, taking cultural and sociological factors into consideration. Furthermore, the application of the action guides will depend on the specific details of each emergency.

2. BASICS

2.1. INCIDENT COMMAND SYSTEM

Each Member State needs to develop an integrated response system with responsibilities and authorities clearly assigned and coordinated. The response should be directed from a central location near the scene as soon as possible [4].

There are two different types of emergency facilities or locations: those established in advance (for example for a nuclear power plant) and those established at the time of an emergency. In both cases the functions and operational conditions and requirements of the facilities and locations must be carefully considered and necessary advanced preparations made. Public communications will be a key area in both cases.

The Incident Command System (ICS) is the most widely used structure for emergency response and is used in IAEA guidance. This structure consolidates response decision making in an Incident Commander (IC), whereby all activities and functions report through the structure to the IC. The size of the structure is scalable to the needs of the specific emergency and is usually adapted to include the type of response functions according to the nature of the emergency. Suggested structures have been developed by the IAEA in Reference [4].

ICS is built around five major components: command, planning, operations, logistics and finance/administration. In small scale incidents/emergencies, one person, the IC, may manage or perform all of the components. Large-scale incidents/emergencies usually require that each component, or *section*, is set up separately. Each of the primary ICS sections may be divided into smaller functions as needed. Typically, the organization is divided into *branches* depending on the nature of the activity having functional or geographic responsibility, *groups* that are responsible for a specified functional assignment, and finally *teams* [4]. A basic structure of ICS organization is provided in Figure 1.

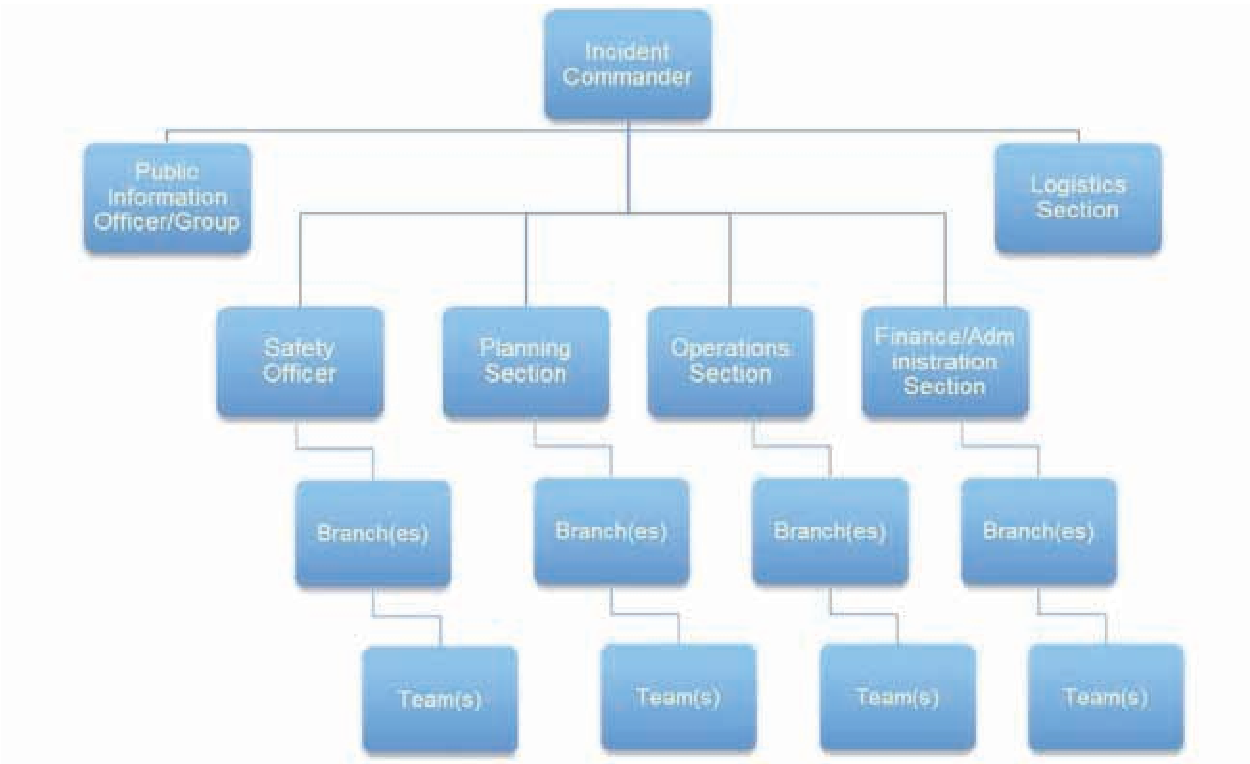

FIG. 1. Basic structure of ICS organization.

Public communications is part of the command section. Depending on the size of the emergency, this function may be undertaken by an individual or group. One of the key advantages of the ICS is that it allows different disciplines and functions to work together in a unified structure. For public communications, this also allows for coordination between different organizations involved in the response, such as the ministries responsible for radiation protection, health, environment and food.

2.2. ORGANIZATION OF COMMUNICATION WITH THE PUBLIC

The Public Information Officer (PIO) or team is primarily responsible for keeping the public and media informed and for coordinating with all sources of official information to ensure a consistent message is being provided to the public.

In an emergency, the PIO will function under the IC who will approve information released to the public. The major goals of responding to a radiation emergency are to protect the public and to protect emergency personnel during the response. Instruction 2 of Reference [6] provides personnel protection guidelines that should be followed by PIOs as they are also considered "first responders."

In case of an emergency, a lead PIO should be assigned. The lead PIO may need assistants, depending on the size and complexity of the emergency and also the phase of the emergency. While in the preparedness phase and post-emergency phase the organisation of Public Information Team can be more limited, in the emergency response phase the structure will be more detailed. This depends on the scale of the emergency and on the available resources. A basic structure of the Public Information Team is provided in Figure 2. Action Guide 1 lists basic actions for the PIO/Team.

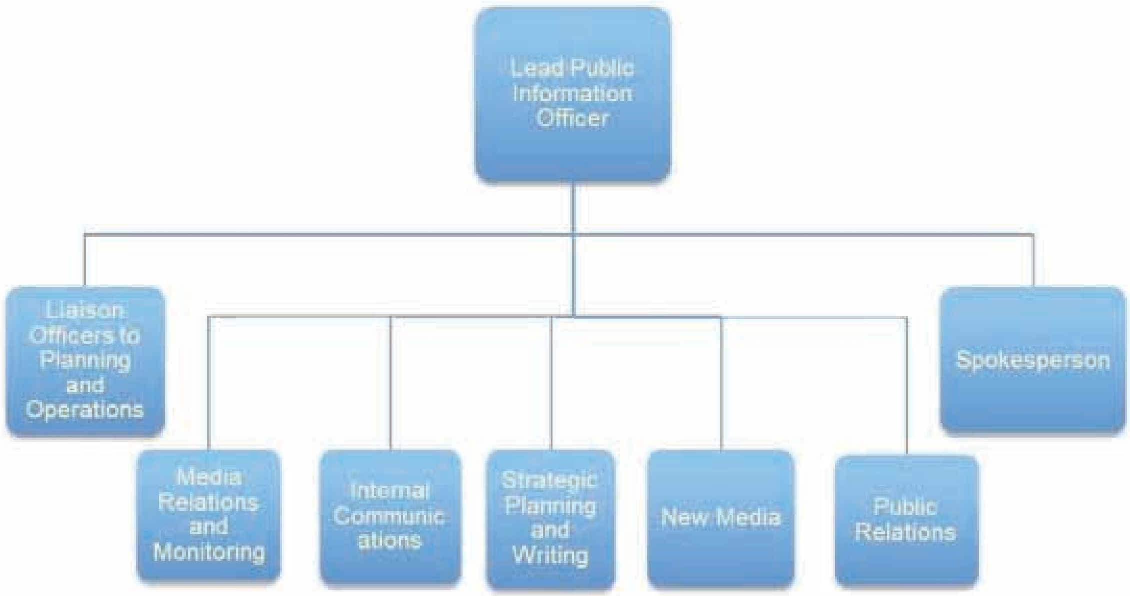

FIG. 2. Basic structure of Public Information Group/Team.

Regardless of the size of the emergency, the role and functions of the PIO (described below) will remain the same. For an emergency with significant media interest, the PIO or team should operate out of a Public Information Centre (PIC). The PIC is the location for the coordination of all official information released to the media concerning the emergency. The PIC will be located in a secure area in the vicinity of the emergency scene near the Incident Command Post (ICP) with space and infrastructure to support the media briefings [6]. In-depth planning on establishing an emergency response capability is described in Reference [4].

2.3 ROLES IN COMMUNICATION WITH THE PUBLIC DURING AN EMERGENCY

2.3.1. Local Authorities

Communities can serve a variety of functions during an emergency including disseminating information, mobilizing care and support and attending to basic needs of its members. Community preparedness and awareness of emergency measures will help improve acceptance and compliance during an emergency. Afterwards, it will also help build resilience in the recovery phase. Local authorities should plan their response to any likely emergency, including the need to evacuate in the event of a radiation emergency. These plans should be coordinated with other levels of government (national authorities).

Local governments will expect and be expected to communicate about what they are doing to respond to a radiation emergency. Residents and the media will seek out local officials for both information and services in all phases of the emergency, but most intensively if there is an evacuation or in the recovery phase, where long term measures may be required for the affected community. They may also be involved with managing the economic impacts on local industry, tourism and property values over the long term.

In order to provide consistent information to the media and public, it will be important for public communications at the national level to be coordinated with the appropriate local authorities. It will be vital that local government spokespeople and elected officials are aware of what is being said about response actions taken and risk assessments performed. Although they are not likely to be sought out by the media as an expert on these subjects, they may be asked for local reaction to what is happening. If they are not aware, their response to such questions could create the perception that the response is not being well managed. Furthermore, local authorities will have in-depth knowledge of the community and can be a source of valuable information on siting information centres, organizing public meetings, church and community groups that are able to share information with their memberships, and other existing mechanisms for communicating with local residents.

2.3.2. National Authorities

In order to have an effective public information response to an emergency, public communications must also be coordinated at the national level, to avoid contradictory messages and misinformation between national organizations involved in the response. The response structure, including the roles and responsibilities of the different organizations involved, should be planned in advance and reflected in all organizational and national response plans. The ICS or similar structure could be used to ensure the level of inter-organizational coordination that will be required at the national level. Not only will this structure help different organizations to understand their role, it will ensure that media calls are referred to the appropriate spokesperson or organization according to the established roles and responsibilities.

Each Member State and international organization party to the Convention on Early Notification of a Nuclear Accident is required to notify the IAEA of any potential international transboundary release of radioactive materials that could be of radiological significance for another State [7]. While strictly speaking, this means that notification is required should the emergency situation be likely to release radiation across national boundaries, there may be other situations where notification could be considered, particularly those which may have international consequences, such as emergencies in major cities or contamination of people, commodities or conveyances that cross borders.

Each Member State and international organization must designate and make known to the IAEA its national 24/7 warning point and competent authorities for notification purposes. Contact details (fax numbers, telephone numbers and, if appropriate, email addresses) and all changes should be sent to the Incident and Emergency Centre (IEC) and copied to the permanent mission to the IAEA. All arrangements are provided in Reference [8]. For public communications during an emergency, there is a section on the Unified System for Information Exchange in Incidents and Emergencies (USIE) form where contact details for media calls and links to any press releases can be provided. USIE is a single unified website for incident and emergency reporting for Emergency Contact Points and INES National Officers. The information will then be disseminated to all contact points so they are aware of public information that has been released and so that media calls can be directed appropriately as needed.

Ideally, national authorities will have developed the following items that are important for PIOs:

- ❑ Emergency response organization—roles and responsibilities.
- ❑ Contacts for information.
- ❑ URLs, phone numbers and emails:
  - Authorities for response (national legislation/regulations).
  - Basic advice on general actions the public can take.
- ❑ Monitoring, surveillance and laboratory services available to detect an uncontrolled release of radioactivity.
- ❑ Dose assessment capability.
- ❑ Response planning (medical capacity, protective and response actions).
- ❑ National response criteria (generic and operational) and explanations of possible protective actions.
- ❑ General background information on facilities and use of radioactive materials in State.
- ❑ List of risks based on use of radioactive materials in the State/area/region.

2.3.3. International Organizations

The “Joint Radiation Emergency Management Plan of the International Organisations” (Joint Plan) [9] is the framework for coordination of the response activities of relevant international organizations, such as the World Health Organization, the World Meteorological Organization, and the Food and Agriculture Organization, during a radiation emergency. The Joint Plan is a comprehensive inter-agency mechanism, which identifies the inter-agency framework for emergency preparedness and response and provides means for coordination and clarity with regard to the roles and capabilities of the participating international organizations in preparing for and responding to nuclear or radiological emergencies. Under the Joint Plan, the IAEA takes the lead role in coordinating the response to a radiation emergency.

The international response focuses on coordination of information from the Accident State to other States and the provision of technical or other assistance when requested. For public communications purposes, the IAEA will undertake media relations and media monitoring activities as well as distributing background information on the situation and on its role and activities during the emergency. Public communications activities will be coordinated amongst the international organizations of the Joint Plan [9]. In order to ensure that information is accurate prior to release, the IAEA verifies all information with affected State(s).

2.4 BUDGETARY REQUIREMENTS AND RESOURCES

The demands for public information during an emergency, and its associated costs, are often underestimated. Resources will vary according to the existing level of public communications undertaken by the Member State. Those without such programs already in place may need to dedicate additional financial and human resources to develop the policies, procedures, training, information products and website that will be required to respond to an emergency. In addition, contracted services for media monitoring, translation, advertising, printing, and audio-visual equipment may be required. Additional resources may also be required inclusion of the public communications program in emergency exercises, simulations and drills.

Some new facilities may be necessary, depending on the situation in the Member State. Existing facilities such as visitor centres, offices, an auditorium, a hotel, conference rooms, or a school can be temporarily converted to be used as locations for public communications activities.

2.5 PLANNING AND PREPARATION

Public communications is an integral part of the overall management of a radiation emergency. Plans and procedures to deliver the public information response should be developed in advance of any emergency. These plans will need to be integrated within the overall planning and arrangements for managing emergencies. The plans should detail the roles and responsibilities and activities to be carried out during the response. Procedures and checklists give specific instructions to the individuals assigned to fulfill the various roles and to undertake the specific public communications activities.

Plans and procedures of the organizations, as well as national response plan and procedures, should be in place to coordinate public communications activities with regional and/ or local authorities. While information may be provided to the public from these different levels, it is vital to the credibility of the response that the information itself be consistent. Plans should identify roles and responsibilities of the different actors in the public information response. They should include specific mechanisms for coordination of information between all levels, especially local, regional and international.

The national plan should also include designation of a national point of contact to the IAEA for public communications matters. This role could be fulfilled by the National Competent Authority for an Emergency Abroad [8] or a specific contact for media relations may be identified as part of specific response arrangements.

Procedures should also be developed for the wide variety of public communications activities. These may include media monitoring, media relations, public information notices, and public hotlines for questions.

The personal well-being and productivity of staff in an emergency is crucial for an effective response. Ensuring that reasonable shift lengths and frequencies are planned for will help to reduce stress and fatigue. Shifts may need to be in place over a number of days, weeks or months. The public and media can be aggressive and unsympathetic, which can be demanding and strenuous on PIOs. Therefore, planning appropriately by training enough staff for all Public Information Team roles will be beneficial.

Figure 3 shows the cycle of how to effectively organize and implement the PIO roles and activities described in the Action Guides and Information Sheets.

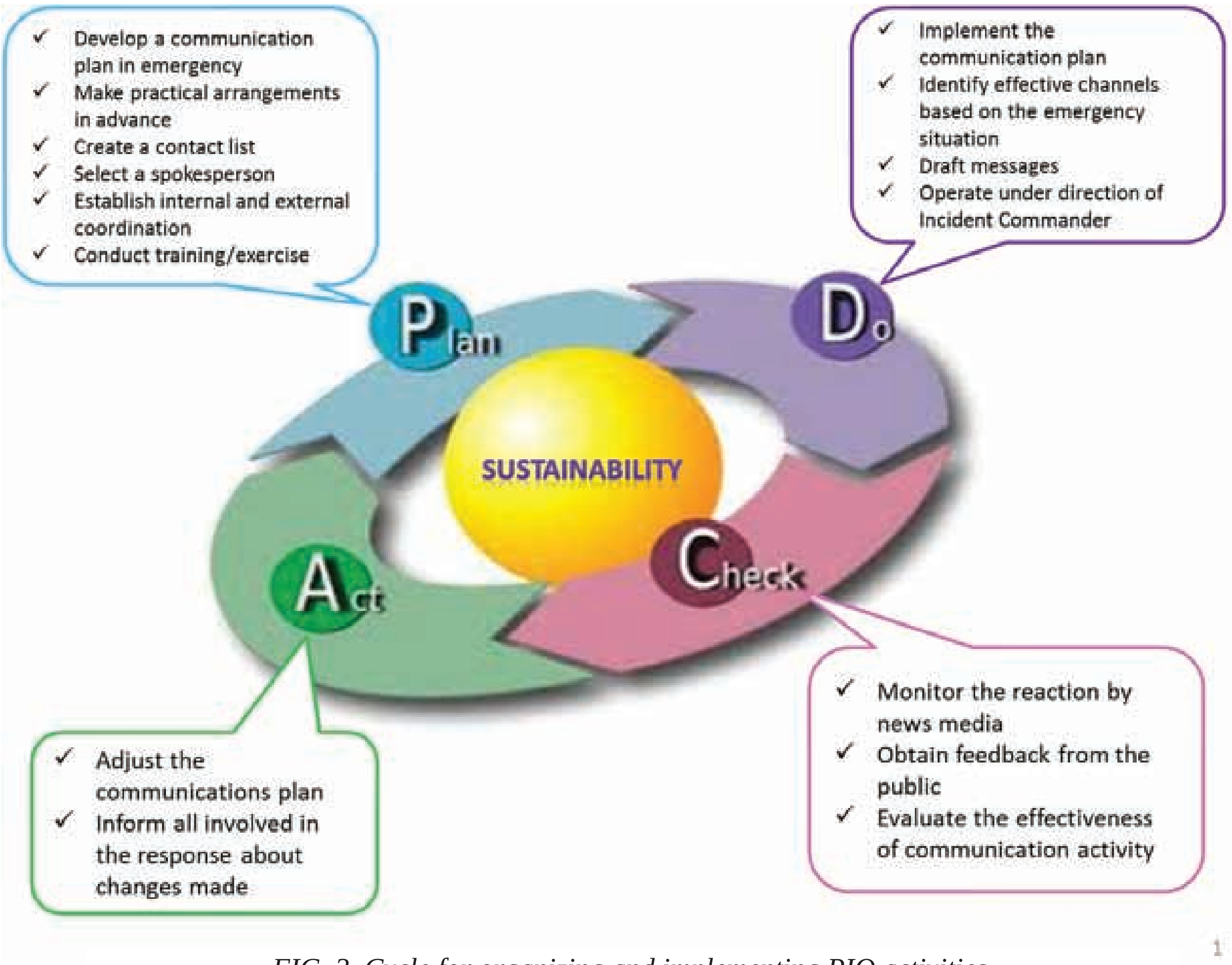

FIG. 3. Cycle for organizing and implementing PIO activities.

- "Plan" is the preparation phase for communicating in an emergency such as development of a communication plan, procedures and practical arrangements in advance.
- "Do" is the phase of implementation of communication activities by the PIO/Team in an emergency such as drafting messages and operating under the IC's direction on releasing messages to the public.
- "Check" is the evaluation phase to determine the effectiveness of communication activities such as media monitoring.
- "Act" is the phase of adjustment of communication activities based on the evaluation results in the "Check" phase.

Depending on the situation at a nuclear facility, the PIO communicates in different ways with the public. Figure 4 illustrates what is being communicated and the evolution of communication under normal and emergency circumstances.

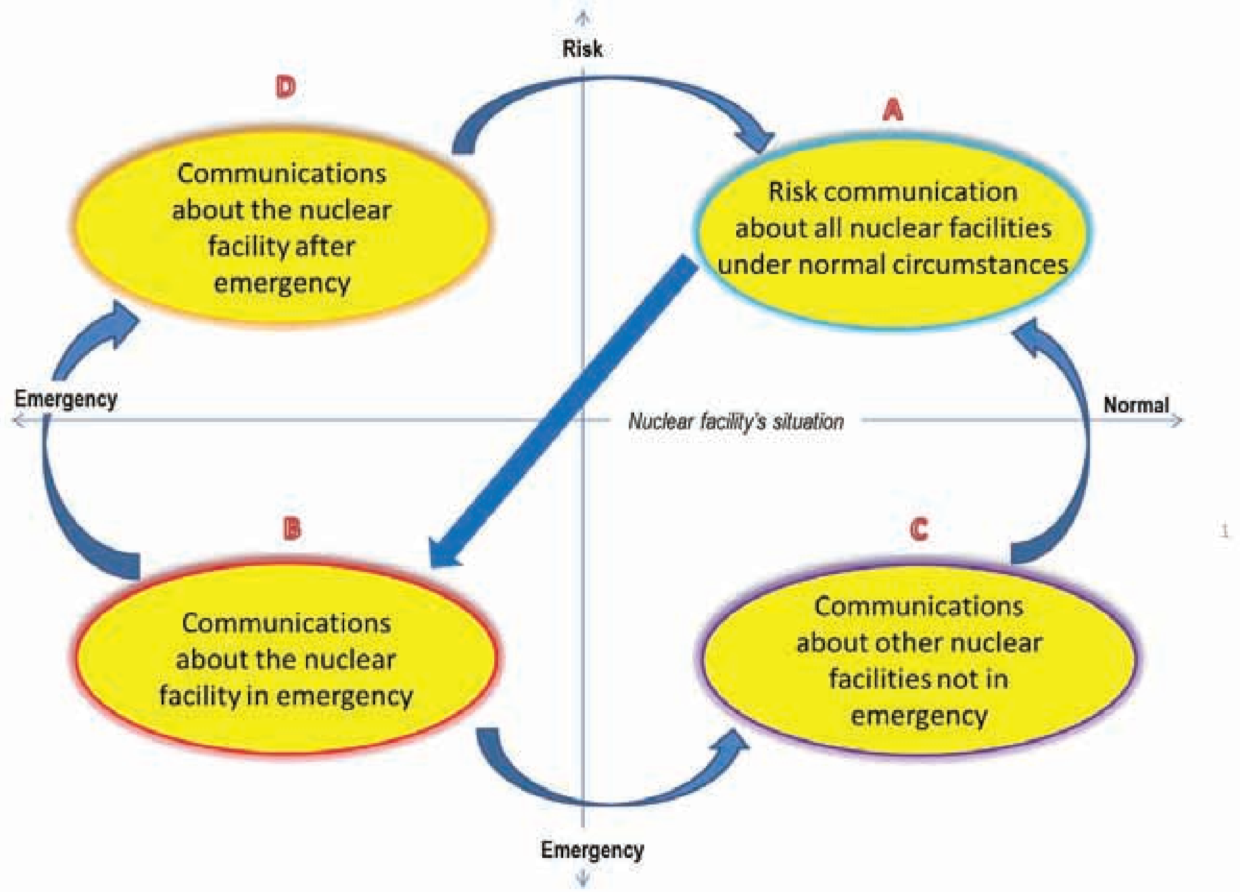

FIG. 4. Communication cycle for nuclear facilities.

In Figure 4, the horizontal axis relates to the situation at a nuclear facility, varying from a normal operating mode to an emergency mode and the vertical axis relates to the risk of an emergency situation (i.e. the potential for a hazardous or otherwise detrimental situation to arise) and an actual emergency situation.

In quadrant A, the PIO works on communication activities taking into account the risk perception of the public. As soon as a nuclear emergency occurs, efforts are expanded on communication activities, such as collecting current and on-going information on the situation from the emergency response team, and operating under the IC's direction for drafting messages for the public and deciding how to deliver the message through the most effective communication channels. The phase of communication moves from quadrant A to B.

In quadrant C, the PIO communicates about other nuclear facilities that are not directly affected by the emergency but that may be the focus of public interest, questions and concerns.

Taking into consideration the causes of the emergency, mitigatory actions will be applied to the nuclear facility. In this phase (quadrant D), the PIO works on communicating these actions to the public, taking into account technical data and social response to the emergency.

The messages and delivery channels for communication move from risk communication to emergency communications during the response and back to risk communication in a cycle.

3. PUBLIC COMMUNICATIONS ACTION GUIDES (PC-AG)

(To be implemented as appropriate and practical)

PC-AG.1. GENERAL ACTIONS FOR PIO/ TEAM IN AN EMERGENCY

- ❑ Operate under the IC and follow the personnel protection guidelines in Instruction 2 of Reference [6].
- ❑ Receive a briefing from the IC.
- ❑ Establish communication line between PIO and radiological assessor/team to provide on-going consultation and advice on dealing with the radiological hazard and appropriate response actions to emergency.
- ❑ Take all practical steps to provide the public with useful, timely, truthful, consistent and appropriate information throughout the emergency.
- ❑ Prepare, in cooperation with law enforcement team, for immense media attention including the arrival of reporters at the scene.
- ❑ Confirm with the IC that you are the official source of public information and inform the on-scene responders, law enforcement, hospitals, local government and national Emergency Operation Centre (EOC) to refer media inquiries to you.
- ❑ Develop with the IC and issue a press release (see Appendix I for examples) describing:
    - The threat;
    - Appropriate and inappropriate public response actions; and
    - Actions being taken to ensure public safety, protection of products, etc.
- ❑ As soon as possible, establish a PIC where media briefings from a single qualified spokesperson or a panel with representatives of all organizations involved in the response will be provided. Include representatives of local and national governments in briefings.
- ❑ Assess the needs and request additional resources.
- ❑ Prepare for international inquiries and rumours.

PC-AG.2. PRACTICAL ARRANGEMENTS FOR THE PIO

Logistical arrangements for setting up the PIO response team should be developed in advance, along with all necessary procedures. Some required capacities during a radiation emergency include:

- ❑ Follow national, regional public communication plans and associated procedures- roles, responsibilities.
- ❑ Follow Plan/arrangements for coordinating public communications/media relations with bordering countries.
- ❑ Maintain roster of staff involved in public communications in emergency response (see PC-AG.3).
- ❑ Activate full public information response (even in the absence of formal activation of national emergency response) and required technical and administrative support.
- ❑ Ensure functionality of dissemination capabilities (fax distribution services, listserv) for press releases, public information notices, protective actions, etc.
- ❑ Monitor the media (national and international).
- ❑ Ensure staff is coached for dealing with the media.
- ❑ Maintain roster of media trained spokespersons.
- ❑ Draft fact sheets and questions and answers.
- ❑ Maintain maps and illustrations.
- ❑ Ensure translation capabilities.
- ❑ Use templates for delivering statements, press releases, speaking points etc.
- ❑ Establish toll free number for public calls.
- ❑ Ensure logistics and procedures are in place to establish dedicated Public Information Centre (PIC) when necessary.

PC-AG.3. CONTACT LIST OF PIO/TEAM

The following contact lists should be created and maintained up to date at all times:

- ❑ A list of all staff involved with work, home and mobile phone numbers and addresses.
- ❑ A media contact list.
- ❑ Contacts of PIOs at others responsible organisations.
- ❑ Identification of reserve staff for administrative and support tasks such as computer support, photocopying, telephone answering, faxing.
- ❑ A roster of staff to ensure 24 hour coverage.

When preparing these lists consideration should be given to the following:

- ❑ Allocating responsibility for regular checking, testing and updating of all contact details.
- ❑ Allocating responsibility for regular checking of availability of staff and updating of rosters.
- ❑ Ensuring acknowledgement of call-out tests takes place and is monitored.
- ❑ Setting a time target within which the facility should be functioning at least at minimal level.
- ❑ Identification (in the procedures) of whose responsibility it is to authorize the call-out in an emergency.
- ❑ Identification (in the procedures) of whose responsibility it is to implement the call-out in an emergency.
- ❑ Samples of likely message content to be conveyed to each individual or a checklist of items of information which must be conveyed (in the procedures).

Sample staff contact lists are provided in Appendix II.

PC-AG.4. TRAINING AND EXERCISES

In the event of a radiation emergency, a prepared and informed public is much more likely to understand the messages being provided by the authorities. This will help in the coordination of emergency response and, in the aftermath, the fact that good information was provided beforehand can be a great advantage. It means that the public is less likely to lose trust in the institutions responsible for ensuring their safety [11, 12].

A specialized communications training, drills and exercise program should be established to ensure personnel are prepared to effectively respond in the event of a radiation emergency. This training should be offered to all PIOs on an annual basis. Training should also be offered to non-plant personnel and to the news media.

PIO training

The overall objective of PIO training is to prepare and maintain qualified personnel for all communications team positions. The training is commensurate with the individual's emergency response assignment.

Initial training on the radiation emergency communications plan should be conducted for new staff on an `as-needed' basis. Training should be held annually for all staff and when appropriate should be coordinated with the nuclear plant training department. The training may consist of classroom sessions where topics include:

- ❑ Changes to the radiation emergency communications plan or procedures.
- ❑ Changes to the nuclear plant emergency plan or procedures.
- ❑ Personnel changes and assignments (utility, regulator, off-site, others).
- ❑ Facility and equipment changes.
- ❑ Lessons learned from previous training, drills and exercises.
- ❑ Lessons learned from other utilities' emergency responses.
- ❑ Lessons learned from other industries emergency responses, where appropriate.

Annual training should also include participation in a drill or exercise.

Position-specific training may be necessary, including classroom presentations, tabletop drills, facility drills or equipment training. Specific training may be provided for:

- ❑ Spokespersons.
- ❑ Telephone/hotline representatives.
- ❑ Personnel who interface with the media.
- ❑ News statement writers.
- ❑ Facility directors and supervisors.

Emergency exercises

PIOs should participate in the exercise programme as promulgated by the facility emergency response plan. This may include:

- Public information representation on the scenario development team.
- Inclusion of public communications objectives in the plant drills or exercises.
- Inclusion of messages and situations that will initiate public communications activities and response.
- Becoming Controller/Evaluators for drills or exercises.
- Co-ordination with off-site responding agencies.

PIOs should participate in at least one exercise per year. The exercise objectives should include a shift turnover so that as many Public Information Team members as possible have the opportunity to participate. As determined, PIOs may conduct/participate in separate radiation emergency communications team drills.

PC-AG.5. SPOKESPERSON SELECTION AND INTERVIEW GUIDELINES

During an emergency, only authorized persons should make statements to the media. It is key to ensure that all interview preparation is done under the direction of the IC. The spokesperson is the official designated to speak to the media with support from public communications/media relations specialists, who will coordinate all responses (in the event where multiple spokespersons are required) to ensure that no conflicting or contradictory messages occur. The public communications/media relations specialist will also provide guidance or coaching to prepare the spokesperson for specific interviews or press briefings.

The selection of the spokesperson is based primarily on three factors: technical expertise, level of authority and communication skills. To be credible, the spokesperson should be an expert in the area and hold a position with a level of authority appropriate to the matter about which he/she will be speaking. In an emergency, the spokesperson is often a senior official involved in managing the response. The spokesperson must also be a good communicator, who can empathize with the public's concerns and be able to simplify scientific and technical information. He/she should work with the PIO to develop appropriate plain language explanations and analogies to explain technical matters.

In communicating with the media, the spokesperson should be:
- ❑ Straightforward.
- ❑ Comfortable and confident.
- ❑ Honest.
- ❑ Brief.
- ❑ Human and sensitive.
- ❑ Personal.
- ❑ Positive and consistent.
- ❑ Attentive.
- ❑ Energetic.
- ❑ Committed and sincere.

Interview instructions

WHEN A JOURNALIST CALLS ask:
- ❑ Will the interview be broadcast live or recorded?
- ❑ Who else will be interviewed?
- ❑ How long have you got for answers to questions? (e.g. 20 seconds per answer).
- ❑ Where and when will the interview be broadcast/published?
- ❑ What type of programme will the interview be used in?
- ❑ Negotiate any special requirements well before the interview (e.g. when and where).
- ❑ You always have right to say no, but remember the public have a right to know.
- ❑ You don't need to answer all questions. Give your core message.
- ❑ The interview should be an opportunity to get an important message to the public.

DURING AN INTERVIEW:
- ❑ Be brief, clear and simple (e.g. 20 seconds per statement).
- ❑ Be self-confident.
- ❑ Be truthful. If you cannot answer a question, give the reason why or indicate who the question should be put to.
- ❑ Always include your message in an answer irrespective of particular questions.
- ❑ Don't theorize or speculate.

- ❑ Speak only in your field, about things you know.
- ❑ Answer only the questions put about the emergency, not any general statements.
- ❑ Never use the phrase: "No comment." (If necessary, explain *why* you can’t comment.)
- ❑ Keep cool and avoid any heated exchange.

BEFORE TV INTERVIEW

- ❑ Talk to the journalist and try to establish some personal contact.
- ❑ Talk to the journalist about the broader aspects.
- ❑ Ask the journalist to tell you the questions – word for word.
- ❑ Request no more than 3 questions in front of the camera.
- ❑ Take time to think over your answers before the interview.
- ❑ Remember the core messages you intend to put out.
- ❑ For TV, check the interview background. The surroundings can be a message too.

DURING TV INTERVIEW

- ❑ Take time to answer questions but stick to the point or message.
- ❑ Try to keep your answers short (e.g. 20 seconds per answer).
- ❑ Don’t just say "yes" or "no". Explain and include your message.
- ❑ Don’t fold your arms.
- ❑ During an emergency, the interview could be outside. If so, agree to be standing, not sitting.
- ❑ Behave naturally and try to enjoy the interview.
- ❑ Try to answer clearly, just as you would to a friend or relative who wanted your opinion or some information.
- ❑ If it is a recorded interview, you can always ask for a question to be repeated.
- ❑ Remember that the camera or microphone may be running before and after the interview.

WHAT THE MEDIA WILL ASK DURING AN EMERGENCY

As applicable to the situation, be prepared to respond to questions about the following:

A. Descriptions of the emergency

- ❑ Cause of the emergency.
- ❑ When it happened.
- ❑ Extent of the emergency.
- ❑ Extent of any releases, spills, blasts, explosions.
- ❑ Levels of radiation and hazardous materials released.
- ❑ Description of odors or color of flames.
- ❑ Attempts at rescue or escape.
- ❑ Soundness of structures, systems, equipment.
- ❑ Status of other units at site.
- ❑ Power supply implication or effects.
- ❑ Generic implications.
- ❑ Preliminary or tentative INES level assigned.
- ❑ What the next steps will be.

B. Response efforts

- ❑ How emergency was discovered.
- ❑ Who sounded alarm and called for help?
- ❑ What agencies have responded to the emergency?

- ❑ What agencies are expected to respond?
- ❑ Forewarnings; prior indications of emergency.
- ❑ Status of plant at time of emergency (in case of NPP emergency).
- ❑ Current status of plant and of the response (in case of NPP emergency).
- ❑ Interview opportunities with participants, witnesses.
- ❑ Interview opportunities with key responders (operators, fire, police) and company executives.
- ❑ Interview opportunities with experts.

C. Property/equipment damage

- ❑ Description of damage – kind of building(s), plant, equipment.
- ❑ Estimated value of loss.
- ❑ Significance of damage (to the continued safe operation or shutdown of the plant).
- ❑ Other property or buildings threatened.
- ❑ Previous emergencies associated with the facility or site.

D. Casualties

- ❑ Number killed, injured, missing.
- ❑ Nature of injuries received.
- ❑ Care given to injured.
- ❑ Whether or not injured were contaminated.
- ❑ Where injured were treated, decontaminated.
- ❑ Job description of anyone who was killed, injured, or escaped.
- ❑ How escape was completed, handicapped or stopped.

E. Relief efforts

- ❑ Number evacuated from site.
- ❑ Number involved in rescue and relief.
- ❑ Equipment used.
- ❑ Obstacles to correcting the problem.
- ❑ How problem was prevented from escalating.
- ❑ Acts of heroism.
- ❑ Capabilities of off-site agencies to respond.

F. Public Protection and Health Consequences

- ❑ Will the public be affected?
- ❑ What protective action has been taken?
- ❑ What was the basis for any decision on protective action?
- ❑ Who decided what actions the public should take, and where are they based?
- ❑ Will there be radiation-induced illnesses (e.g. increases in number of cancer cases)?
- ❑ Definitions of exposure terms.
- ❑ How time, distance, shielding provide safety.
- ❑ What does shelter mean?
- ❑ What does evacuation mean?
- ❑ Why are livestock sheltered?
- ❑ How long are these measures likely to continue?
- ❑ How did decision makers learn of plant status?
- ❑ What methods have been used to educate the general public before and during the emergency?

Communicators should be also prepared to face questions about legal and financial implications of an emergency. Responses to such questions need to be carefully prepared, as unguarded comments from the side of communicators could have serious legal and financial implications.

Media training

It is advisable that all persons speaking to the media during a radiation emergency are provided with media training on a regular and consistent basis. All spokespeople and technical experts should be well prepared for potentially challenging and stressful interactions with the media during a radiation emergency. It is imperative that training is conducted well in advance of any potential emergency. Media training should be provided to all technical experts who may be called on to brief the media during an emergency.

The following elements of media training should be considered to ensure spokespeople and technical experts are properly prepared:

- ❑ Interview preparation.
- ❑ Developing key messages.
- ❑ Training for broadcast interviews.
- ❑ Basics of crisis communications.

PC-AG.6. DEVELOPING MESSAGES FOR THE PUBLIC

All messages, written and verbal, should be prepared carefully, keeping the principles of risk communication in mind. Templates for messages are provided in Appendix I. Preparing templates in advance will facilitate developing and distributing messages in an emergency. Messages should be primarily factual. The public will want to receive authoritative and reliable facts and figures.

For written messages, the content (nature of emergency, statement about the danger, consequences, and instructions) and form (understandable, concise, and factual) are key. Written messages should:

- ❑ Describe the radionuclide and the type of radiation involved in the emergency. Describe also the possible pathways by which people could be exposed to radiation.
- ❑ Give estimates of radiation doses, if possible, and explain how they might compare with doses from other sources of radiation, such as natural background radiation or medical practices.
- ❑ Explain the possible health implications of the doses received.
- ❑ Describe how people might be able to reduce radiation doses, sheltering being a prime example.
- ❑ Make clear the areas where populations might be affected and those where people are not (or are unlikely to be) affected.
- ❑ Provide consistent, concise and clear advice. During a prolonged emergency, issuing information at a regular time will help people cope with the effects.
- ❑ Provide reliable information and clear advice on protection.

In addition, verbal messages should:

- ❑ Be simple and understandable (avoid jargon and complex terms).
- ❑ Be brief, concise and clear (3 key messages, 9 seconds, about 30 words only).
- ❑ Meet people’s needs and concerns (inform about the threat and necessary actions).
- ❑ Be truthful, without speculation, providing the facts.
- ❑ Promise only what can be done.
- ❑ Not blame others.
- ❑ Explain why some information may not be available.

In preparation for a radiation emergency it is helpful to have prepared statements or information factsheets on the following topics:

- ❑ How does radiation travel (e.g. via a plume, wind, air and water)?
- ❑ How can radiation be spread (via natural processes, people, animals, vehicles)?
- ❑ How far can radiation travel?
- ❑ Will radiation contaminate water and food supplies?
- ❑ How long will the contamination last?
- ❑ How are radiation levels determined?
- ❑ How is radiation levels monitored?
- ❑ What are the symptoms of radiation exposure?
- ❑ How do individuals know if they have been contaminated or not?
- ❑ What can individuals do to protect themselves?
- ❑ What are the short- and long-term effects of contamination?
- ❑ How will the sick and injured be treated, and can the hospitals cope?
- ❑ What is the possibility of becoming cross-contaminated (from other people)?

- How can I get further information related to the emergency? (Including help lines etc.)

In the event of an emergency, this background information can be released as appropriate via the media and by website, telephone hotline, physical distribution etc.

PC-AG.7. PUBLIC COMMUNICATIONS IN DIFFERENT TYPES OF EMERGENCIES

Unplanned releases as a result of an accident

Messages to the public should be primarily factual. The public will want to receive authoritative and reliable facts and figures. Below are steps to be taken into consideration in the event of an accidental release.

- ❑ Describe the radionuclide and the type of radiation involved in the emergency.
- ❑ Describe the possible pathways by which people could be exposed to radiation, and how they can protect themselves.
- ❑ If possible, give estimates of radiation doses to people and how they might compare with doses from other sources of radiation, such as natural background radiation or medical practices.
- ❑ Explain the possible health implications of the doses received, and symptoms to be aware of.
- ❑ Where appropriate, describe how people might be able to reduce radiation doses, sheltering being a prime example.
- ❑ Make clear the areas where populations might be affected and those where people are not (or are unlikely to be) affected. (Address as appropriate the possibility of weather conditions changing and dispersing contamination in a different direction.)
- ❑ Clearly explain any restrictions on food, milk or water consumption.
- ❑ Clearly explain any travel or transport restrictions or advice.
- ❑ Provide consistent, concise and clear advice. During a prolonged emergency, issuing information at a regular time will help people cope with the effects.
- ❑ Choose spokespersons carefully to deliver information and messages.
- ❑ Clearly communicate the rationale for any public health recommendations, including showering, sheltering, evacuation and stable iodine tablets (if appropriate).
- ❑ Be clear about any uncertainties related to the precise nature of the release so that the need for precautionary measures can be more easily understood by the public.
- ❑ Clearly explain messages containing precautions for children specifically. During an emergency, people naturally have concerns for family members who are involved or they think are affected.
- ❑ Clearly explain the risks from radiation exposure, including acute and long term risks, in straightforward language.
- ❑ Clearly explain the need, when appropriate, for people to attend special monitoring centres set up in response to an emergency so that a comprehensive monitoring programme can be carried out effectively.

Lost or orphan radioactive sources

There is the possibility of individual exposures and/or contamination due to lost or orphan radioactive sources. Below are steps to be taken to communicate clearly and promptly in case of such an event.

- ❑ Describe the radionuclide and the type of radiation involved in the emergency.
- ❑ Describe also the possible pathways by which people could be exposed to radiation.
- ❑ Make clear the areas where populations might be affected and those where people are not (or are unlikely to be) affected.

- ❑ Clearly explain the need, when appropriate, for people to attend special monitoring centres set up in response to an emergency so that a comprehensive monitoring programme can be carried out effectively.
- ❑ If possible, give estimates of radiation doses to people and how they might compare with doses from other sources of radiation, such as natural background radiation or medical practices.
- ❑ Explain the possible health implications of the doses received.
- ❑ Where appropriate describe how people might be able to reduce radiation doses through concepts of time, distance and shielding.
- ❑ Clearly explain in plain language the risks from radiation exposure, including acute and long term risks.
- ❑ Anticipate heightened levels of anxiety and handle them sensitively when a monitoring programme is set up. Some people who think they, or their family, are affected when they are not, are likely to seek monitoring. Conversely there will be people who refuse to attend monitoring centres for a variety of reasons, including a fear of getting contaminated by others.

Releases as a result of deliberate acts by individuals or groups

The outcomes of the deliberate release of radioactive materials by individuals or groups are not necessarily different from the unplanned or unintentional releases described above, but the special characteristics of such emergencies need to be carefully considered in public communications.

In the event of such an emergency, communications protocols should be agreed with appropriate authorities as security issues are of concern. Below are steps to be taken to communicate clearly and promptly in case of such an event.

- ❑ Describe the radionuclide and the type of radiation involved in the emergency.
- ❑ Describe the possible pathways by which people could be exposed to radiation, and how they can protect themselves.
- ❑ Make clear the areas where populations might be affected and those where people are not (or are unlikely to be) affected. (Address as appropriate the possibility of weather conditions changing and dispersing contamination in a different direction.)
- ❑ Clearly explain any restrictions on food, milk or water consumption.
- ❑ Clearly explain any travel or transport restrictions or advice.
- ❑ Clearly explain the need, when appropriate, for people to attend special monitoring centres set up in response to an emergency so that a comprehensive monitoring programme can be carried out effectively.
- ❑ If possible, give estimates of radiation doses to people and how they might compare with doses from other sources of radiation, such as natural background radiation or medical practices.
- ❑ Explain the possible health implications of the doses received, and symptoms to be aware of.
- ❑ Clearly explain in plain language the risks from radiation exposure, including acute and long term risks.
- ❑ Anticipate heightened levels of anxiety and handle them sensitively when a monitoring programme is set up. Some people who think they, or their family, are affected when they are not, are likely to seek monitoring. Conversely there will be people who refuse to attend monitoring centres for a variety of reasons, including a fear of getting contaminated by others.

There will always be special considerations for this type of emergency, which may restrict the amount of information that can be made public. Spokespersons need to be carefully briefed on what can be said and what cannot. Agreements will be required on communications that are necessary for public health reasons without compromising any investigation.

In the circumstance of a terrorist attack, people will seek information, want to contact and protect their families and make sure they have access to basic provisions. Communications for those most affected by an emergency will need to address these issues.

People will want information on the current status of any deliberate act, its magnitude and any identification or capture of the perpetrators. Research has shown that fears can decrease if the public has information on how the emergency services are responding to the situation.

4. PUBLIC COMMUNICATIONS INFORMATION SHEETS (PC-IS)

PC-IS.1. COMMUNICATING BASICS OF RADIATION

This section provides explanations using plain language terminology about the basics of radiation so that they can be communicated to the public in an understandable way whether during the preparedness or the emergency phase.

What is radiation?

Radiation is a phenomenon in which particles with some energy travel through air or material (skin, glass, water, etc.). Radiation can have an impact on the material through which it is travelling depending on its energy. Radiation is produced by matter and this matter is generally called a source. This source can be natural or artificial (person-made). Cosmic radiation and associated dose rates of exposure are presented in Figure 5.

Basic facts in plain language about sources of radiation:

- Radiation is naturally present in the environment. This is called natural background radiation.
- People are exposed to natural sources of radiation, which include cosmic rays, gamma rays from the Earth, radon decay products in the air and various radionuclides found naturally in food and drink.
- People may also be exposed to artificial sources of radiation, which include medical X rays, industrial gamma rays and fallout from the testing of nuclear weapons in the atmosphere.
- Often, medical exposures from diagnosis and in treatment account for the largest dose from artificial sources.

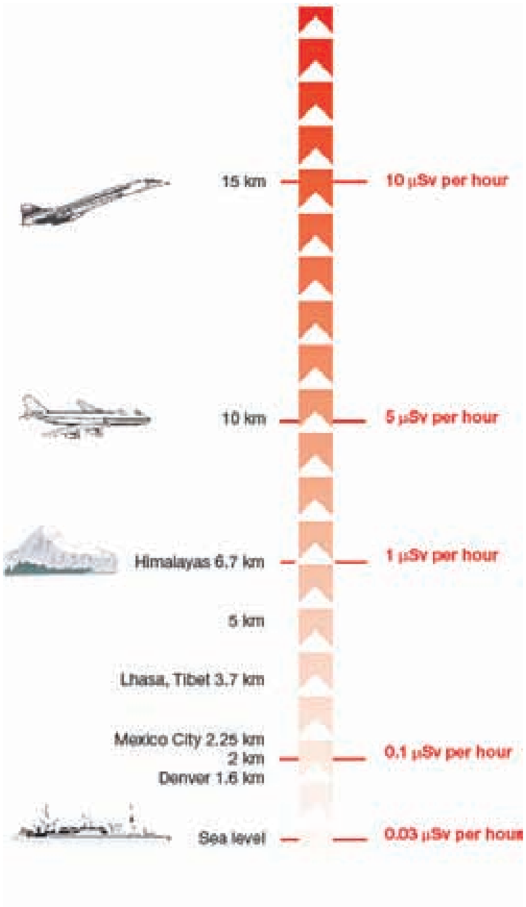

FIG.5. CoFsmic radiation and dose rates of exposure.

Types of radiation

It might be necessary to communicate with the public on some of the types of radiation that can cause injuries, for example to help disseminate information to implement protective actions and decrease public uncertainty and unfamiliarity. However, using overly-technical language that the public may not understand could lead to an increase in fear and uncertainty in an emergency situation. It is therefore essential to keep information about radiation simple. If possible, avoid going into details about the types of radiation. For example, to encourage sheltering, explain how the concrete of a house can stop the type of radiation released.

Radiation comes in several different forms, as described in Table 1, which can penetrate different objects as shown in Figure 6.

TABLE 1. MAIN TYPES OF RADIATION

Alpha radiation (α)	**Beta radiation (β)**	**Gamma radiation (γ)**
Radiation that has a short range in air and can be stopped by paper or skin. This radiation can be hazardous if it enters the body by inhalation or ingestion because large exposures can result in nearby tissues.	Radiation that can penetrate further into materials or tissue, but can be stopped by plastic, glass or metal. This radiation does not normally penetrate beyond the top layer of skin but large exposures can cause skin burns and is also hazardous if it enters the body.	Very penetrating radiation for which only dense material such as steel or lead can provide an effective shield. It can deliver significant doses to internal organs without needing to be taken into the body.

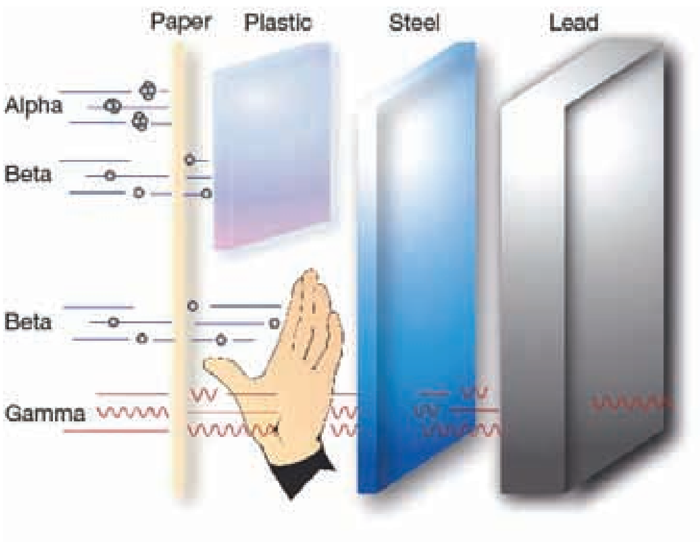

FIG. 6. Types of radiation and penetration.

Exposure pathways

Describing exposure pathways to the public should also be done in a simple way. The following explanation includes appropriate plain language for communicating with the public and is illustrated in Figure 7.

There are two main ways of radiation exposure: external exposure from radiation sources outside the body and internal exposure from radiation sources taken into the body. The ways in which people can be exposed to radiation are called exposure pathways and include:

- External exposure from contact with or being in proximity to a source of radiation (e.g. an item, material or device that can cause radiation exposure, a plume containing radioactive material or ground contamination).
- Internal exposure from ingestion (e.g. of contaminated food, fluid, inadvertent ingestion of contamination on hands); inhalation (e.g. from a plume or deposited radioactive material); or absorption of a radiation source (e.g. through skin or open wounds).

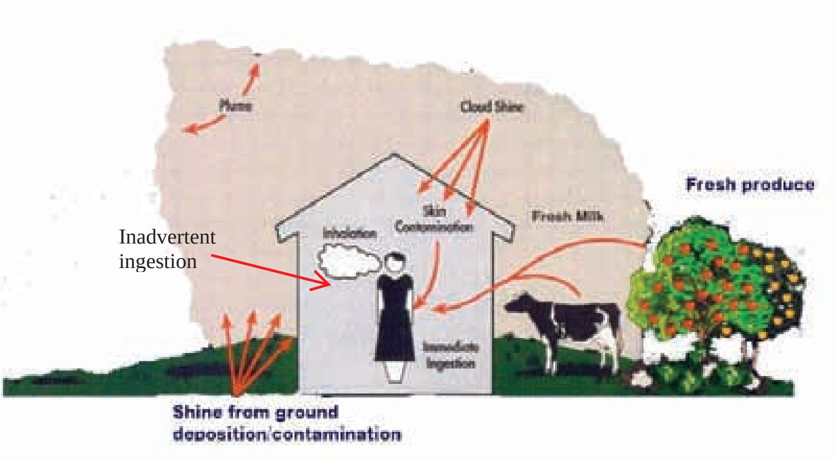

FIG. 7. Exposure pathways.

Quantities and units

Quantities and units should be used very carefully, and when possible they should not be used when communicating with the public. This is because quantities and units of radiation are not commonly used or easily understood by the public. They are very different from units to measure speed and weight for example, which are used in everyday life. Radiation cannot be detected by the senses (smell, vision, taste, touch) but it can be measured in other ways. Table 2 contains plain language explanations for quantities and units.

TABLE 2. QUANTITIES AND UNITS OF RADIATION

Measuring radiation	The becquerel (Bq) is a unit used to measure radiation. When ionising radiation interacts with biological tissue, it deposits energy there. The amount of energy deposited per unit mass of tissue is called the absorbed dose: the unit of this dose is called the gray (Gy). Since equal exposures to different types of radiation expressed as Gy do not necessarily produce equal biological effects, these doses are weighted to give units of dose as the effective dose, or sievert (Sv). The sievert determines the probability that an ill-health effect will ensue. Regardless of the type of radiation, 1 sievert of radiation produces the same probability of biological effect (cancer or hereditary effects). Sievert is calculated and not measured.
Dose of radiation	The amount of radiation – the “dose” – received by people is measured in sieverts (Sv). This takes into account the type of radiation and how a person is exposed to that radiation. Example: A typical dose received due to the natural sources of radiation is 2.4 milliSieverts in a year (written 2.4 mSv or 0.0024 Sv). The sievert belongs to the same family as the litre and kilogram. To explain the prefix “milli” compare with commonly used units such as litre (l) and millilitre (ml).
Dose rate	Dose rate is the rate at which dose is received. It is often used to calculate the intensity of a radiation source. Example: The dose rate at one metre from a source is 50 microsieverts per hour (written 50 µSv/h). If a person stood in this radiation field for 2 hours, he/she would receive a total dose of 100 µSv. Here, a µSv is a million times smaller than a Sv and a thousand times smaller than a mSv.

Half-life is the constant time required for the quantity of a radioactive material to be reduced to one-half its original value.

Effects of radiation

Radiation can have two different types of effect on the body: deterministic (short term, occurring early after exposure) and stochastic (long term, occurring years later). It is essential to describe these effects in simple terms and avoid using the words “deterministic” or “stochastic” when communicating with the public. Instead, the following terminology can be used:

Deterministic effects: These occur after exposure to high levels of radiation above a certain threshold and can result in immediate harm to the body. Such radiation effects can be clinically diagnosed in the exposed individual. Once a radiation dose above the relevant threshold has been received, symptoms will develop. The severity of those symptoms will depend on the dose received.

Stochastic effects: These can occur many years after exposure to radiation, including the development of cancer several years or decades later and possibly, of hereditary effects. Effects such as these cannot usually be confirmed in any particular exposed individual, but can be inferred from statistical studies of large populations. They appear to occur at random in the irradiated population. At no time, however, even for high doses, is it certain that cancer or genetic damage will result in the exposed individual. Similarly, there is no threshold dose below which it can be ascertained that an adverse effect cannot occur. It can never be determined for certain that an occurrence of cancer or genetic damage was due to a specific exposure.

How to recognize a radiation source

Two internationally recognized symbols exist as warnings for radiation sources. The traditional trefoil radiation warning symbol is shown in Figure 8. A more recent standard ionizing radiation warning supplementary symbol, shown in Figure 9, has also been developed and is in use.

FIG.8. Trefoil radiation warning symbol.

FIG. 9. New standard ionizing radiation warning supplementary symbol.

Radiation protection: time, distance and shielding

The basics of protection from radiation are time, distance and shielding. Time allows us to minimize or at least limit the amount of radiation exposure we receive. The longer the exposure time, the higher the radiation dose. The relationship between time and exposure is linear. If we double the time, we double the exposure. If we triple the time, we triple the exposure. Ten times as much time, ten times as much exposure, etc. Typically, time is used in the opposite direction to lower or minimize the exposure. The shorter the exposure time, the lower the dose.

Distance from a radiation source is a very effective way to lower the radiation dose received. The decrease of exposure with distance is not linear. For example, if the exposure rate at 1 meter from a source is 100 then, at 2 meters it will be 25. At 10 meters, it will be 1.

Radiation can penetrate further into materials or tissue, but can be stopped by some materials (see Figure 6). The appropriate shielding can be used to decrease or minimize the radiation exposure.

Putting units and quantities of external exposure in perspective

This section of the publication provides figures that can be used to put commonly reported doses and dose rates from external gamma radiation in perspective relative to the potential health effects in order to address public concerns and help to answer the question frequently asked by members of the public: “Am I safe?”

This section explains how to understand the dose received from carrying or being near a radioactive source when the only source of exposure is from a small (in size) source of external gamma radiation. It must not be used for emergencies involving possible intake or significant contamination (e.g. from a reactor release). Only external exposure from being near or carrying a radioactive source is considered. Situations where significant radioactive contamination is present and internal exposure from ingesting or inhaling radioactive material is possible are not considered here. If there is potential internal exposure, it must be assessed separately.

During past emergencies officials, experts and others have used a variety of quantities and values (e.g. Sv, mSv, mSv/h, μSv/h, Gy, etc.) to describe the potential health impact from the exposure from an external source of gamma radiation. In many cases, these quantities were used incorrectly or not placed in perspective relative to the health effects. The result was confusion and, in some cases, inappropriate actions being taken by the public.

Dose and dose rate quantities by themselves are meaningless, and cannot be related to potential health effects or risks to the public until the following questions are answered:

- ❑ What was measured or reported?
- ❑ How was the person exposed (exposure scenario)?
- ❑ Who was exposed?

In this section, we only consider the effects of external exposure from gamma radiation (exposure from radioactive material outside the body) because this type of exposure is common and can be addressed in a general way since it does not depend on knowing the specific radionuclide (radioactive material) involved and can be based on the dose rates measured by commonly available monitoring instruments. Estimating the health impact of ingestion or inhalation of radioactive materials requires a sophisticated analysis that can only be performed once the actual radioactive material is known.

What was measured or reported?

Dose can have several different names depending on how it is calculated or measured. For example, dose and dose rate can be given in sievert (Sv) or gray (Gy). Furthermore, the sievert (Sv) is the name of several different quantities, including: ambient dose equivalent, equivalent and effective dose from external exposure, ingestion or inhalation of radioactive material. The values associated with each of these quantities all named sievert (Sv) are not always comparable.

Only ambient dose equivalent and effective dose from external exposure can be used to project health effects from an external source of exposure.

How was the person exposed (exposure scenario)?

This section applies to exposures from carrying or being near a radioactive source when the only source of exposure is from a small (in size) source of external gamma radiation.

The circumstances of an individual being exposed can have a major impact on the potential health effects. The individual's proximity to a radioactive source should be considered (e.g. the health effects from carrying a highly radioactive object in the pocket or in the hand can be considerably different than if this radioactive object was located in a room). How long a person was exposed can also be very important.

Who was exposed?

The health effects shown in Figures 10, 11 and 12 are not for any specific individual, but intended to represent the maximum risk to anyone to include the most sensitive members of the population such as children. Special attention is given to the fetus since it is usually considered to be the most vulnerable. During an actual emergency, the radiation-induced health effects would not be expected to occur in anyone at doses or dose rates below the thresholds indicated in the figures.

Potential health effects

Figures 10, 11 and 12 provide doses or dose rates at which the four types of important health effects discussed below may occur. If a health effect is indicated it doesn't mean it will occur, but, because of the *possibility* of health effects occurring, the individual should be assessed by an expert in diagnosing and treating the health effects of radiation exposure. Others, such as local physicians, probably do not have the expertise needed to make such assessments. Access to appropriate experts in diagnoses and treatment of the effects radiation exposure can be obtained through the IAEA or the WHO [7, 8].

- **Deaths**[2]: These are projected deaths resulting from external exposure that occur within hours to weeks. These deaths are not the result of cancer induced by the radiation. Deaths from radiation are ultimately the result of multi-organ failure and depend on factors such as the received dose rates, medical treatment, age and health of the exposed individual. The thresholds for fatalities shown in Figure 10, 11 and 12 are conservative and fatalities would not be expected to occur at these values in the majority of cases.

- **Other severe health effects (severe deterministic effects**[3]**)**, which result in a permanent injury that reduces quality of life. They include:
  - Severe burns (localized necrosis – death of tissue) from carrying an unshielded source in the hand or pocket. Local necrosis, depending on localization, is usually not life threatening.
  - Examples of other non-fatal effects from exposure of the whole body are permanently supressed ovulation (threshold 1500 mSv or mGy) and permanently supressed sperm counts (threshold 1000 mSv or mGy) [14]. The thresholds are conservative and fatalities would not be expected to occur at these values in the majority of cases.

[2] Severe deterministic effects are those effects which are fatal or life threatening or result in a permanent injury that reduces quality of life.

- **Heath effects to fetus:** The fetus, depending on the stage of development can be the most sensitive, with severe health effects occurring at lower doses than for any other member of the population. There is no impact of exposure in doses below 100 mSv on fertility and the probability of bearing healthy children. The termination of a pregnancy at fetal doses of less than 100 mSv is NOT justified due to the risk from radiation exposure [13]. A fetal dose above 100 mSv does not mean that the fetus will be injured. The effects to the fetus from doses above 100 mSv depend on many factors, such as the stage of development. These possible health effects can only be assessed fully by experts in diagnoses and treatment of the effects of radiation exposure.

- **Cancer risk**: Projecting the potential for radiation exposure to result in an increased risk of the incidence of cancer is a complicated and controversial issue. In part, this is because a cancer in a particular person cannot be definitely attributed to the exposure. Therefore cancer risk is discussed in terms of an increase in the cancer incidence rate, above what would normally be expected, in the group that was exposed. An increase in cancer incidence rate would only be expected if large numbers of people were exposed at high doses that approach those that can result in severe health effects. An increase in the cancer incidence rate has not been detected in any group of people who received a whole body dose from external exposure below about 100 mSv (as shown in Figure 10).

Use of figures

Use the figures for the appropriate:

- ❑ Quantity (what was measured or calculated?).
- ❑ International System of Units - Système International d'Unités (SI) unit (see the section below for tools for conversion into SI units).
- ❑ Exposure scenario (how the person was exposed?).

Table 3 describes the quantities and scenarios addressed by Figures 10, 11 and 12.

TABLE 3. QUANTITIES AND SCENARIOS ADDRESSED BY FIGURES 10, 11 AND 12

Quantity - description	Formal name	Scenario	Figure
mSv (mGy [3]) - total dose to the whole body from external gamma radiation received over a relatively short period (within weeks).	Effective dose from external exposure	Exposed to source of external gamma radiation and there is no potential for ingestion or inhalation of radioactive material (no significant contamination is present).	10
mSv/h as measured by a dose rate instrument at 1 m from the radioactive source (object).	Ambient dose equivalent rate	Holding or carrying the radioactive source (object) with this dose rate for the time shown in the figures and there is no ingestion or inhalation of radioactive material (the radioactive source is not damaged and is not leaking significant contamination).	11

[3] External dose reported in mGy is comparable to mSv for the purpose of using the figures.

Quantity - description	Formal name	Scenario	Figure
mSv/h is the average dose rate in the area as measured by a dose rate instrument.	Ambient dose equivalent rate	Conducting normal activities in an area where the dose rate is similar to those shown in the figure. In addition, there is no potential for ingestion or inhalation of radioactive material (no significant contamination is present).	12

When discussing these figures with the public it should be stressed that:

- If a particular health effect is indicated it means that there may only be a small chance of someone suffering the effect. The quantity of exposure does not mean the health effects will definitely take place;
- If a health effect is not indicated, than there's a very good chance that the person will not suffer the effect;
- More accurate assessments of the potential impact on the public can only be performed after the exposure scenarios are better understood and can only be performed by experts in diagnoses and treatment of the health effects of radiation exposure.

Each figure has a plain language explanation that summarizes the range of health effects for the scenario. In using these figures, it must be recognized that much of the information received early in an emergency can be very unreliable or even wrong.

SI prefixes conversion

In most cases, the dose and other quantities will be expressed in units with an SI prefix. SI prefixes are used to reduce the number of zeros shown in numerical quantities before or after a decimal point.

In order to use the tables and figures it is necessary to first ensure the quantities are expressed in the same SI units as they appear on the figure. For example, 1 Sv must be converted to 1000 mSv in order to be used with Figure 10. Table 4 shows the conversions for the most commonly used prefixes used in the figures and Table 5 shows the other SI prefixes that may be used.

TABLE 4. CONVERSION OF MOST COMMON UNITS TO THOSE USED IN FIGURES 10, 11 AND 12

Multiply	**by**	**to get**
Sv	1000 (or 10^3)	mSv
µSv	0.001 (or 10^{-3})	mSv

TABLE 5. SI PREFIXES TYPICALLY USED

Prefix	**Symbol**	**10^n**	**Decimal**
tera	T	10^{12}	1000000000000
giga	G	10^9	1000000000
mega	M	10^6	1000000
kilo	k	10^3	1000
hecto	h	10^2	100
deca	da	10^1	10
		10^0	1
deci	d	10^{-1}	0.1
centi	c	10^{-2}	0.01
milli	m	10^{-3}	0.001
micro	µ	10^{-6}	0.000001
nano	n	10^{-9}	0.000000001
pico	p	10^{-12}	0.000000000001

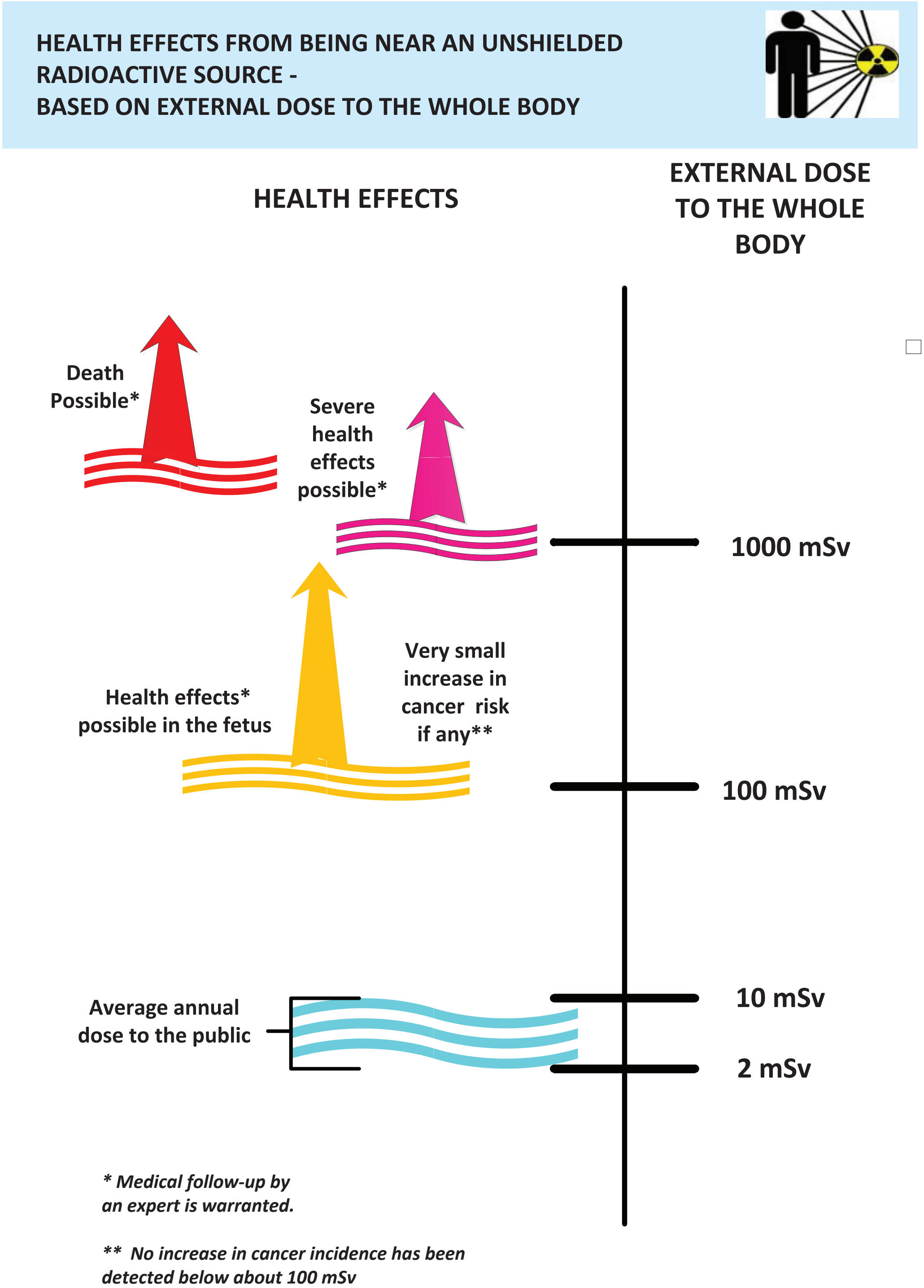

FIG. 10. Health effects from being near an unshielded radioactive source, based on external dose to the whole body.

Explanation of Figure 10: Health effects of external radiation exposure to *the whole body*

Quantity: Effective dose to the whole body from external gamma radiation received over a relatively short period (within weeks). External radiation exposure comes from radioactive material that is outside the body.

Scenario: The person has been near a source of external gamma radiation resulting in external exposure to their whole body. This could be the result of being in a room with an unshielded source (object) or from carrying an unshielded source (object)**.** It is also assumed that the person has not ingested any radioactive material (contamination). If ingestion is suspected (e.g. from inadvertent ingestion from dirty hands) then the potential for health effects should be assessed by experts in diagnosing and treating the health effects of radiation exposure. Ingestion could cause severe health effects including death.

Plain language explanation:

1000 mSv: A dose to the whole body of more than 1000 mSv could result in severe health effects [14]. Therefore doses above 1000 mSv would require immediate medical evaluation by experts in diagnosing and treating the health effects of radiation exposure [10].

100 mSv: At doses above 100 mSv to a fetus, expert medical evaluation is warranted to determine the possible effects and to provide counselling to allow informed decisions [10]. The effects to the fetus from doses above 100 mSv depend on many factors, such as the stage of development [13]. Furthermore, these health effects can only be assessed fully by experts in diagnosing and treating the health effects of radiation exposure. Others, such as local physicians, probably will not always have the expertise needed to make such assessments. At levels of effective dose towards 100 mSv, there is a small subsequent additional cancer risk of less than 1% [15].

Below 100 mSv: At doses below 100 mSv there would not be any detectable cancers or other severe health effects even to the fetus [14]. The termination of a pregnancy at fetal doses of less than 100 mSv is NOT justified based upon the radiation risk [13]. An increase in the cancer rate has not been detected in any group of people who received a whole body dose from external exposure below about 100 mSv.

Average annual dose to the public from natural sources of radiation exposure is shown for perspective [16].

General comments: These doses at which the health effects are shown to occur (thresholds) are the dose values at which the effect may be seen — though unlikely — in a few people, only if large numbers of people have been exposed at these levels. The actual dose value at which an effect would be seen strongly depends upon the dose rate; the dose values in the figures are for brief exposure at a high dose rate (e.g. > 10 mSv/h). The dose value at which the health effect would be expected to be seen would be higher for lower dose rates [14].

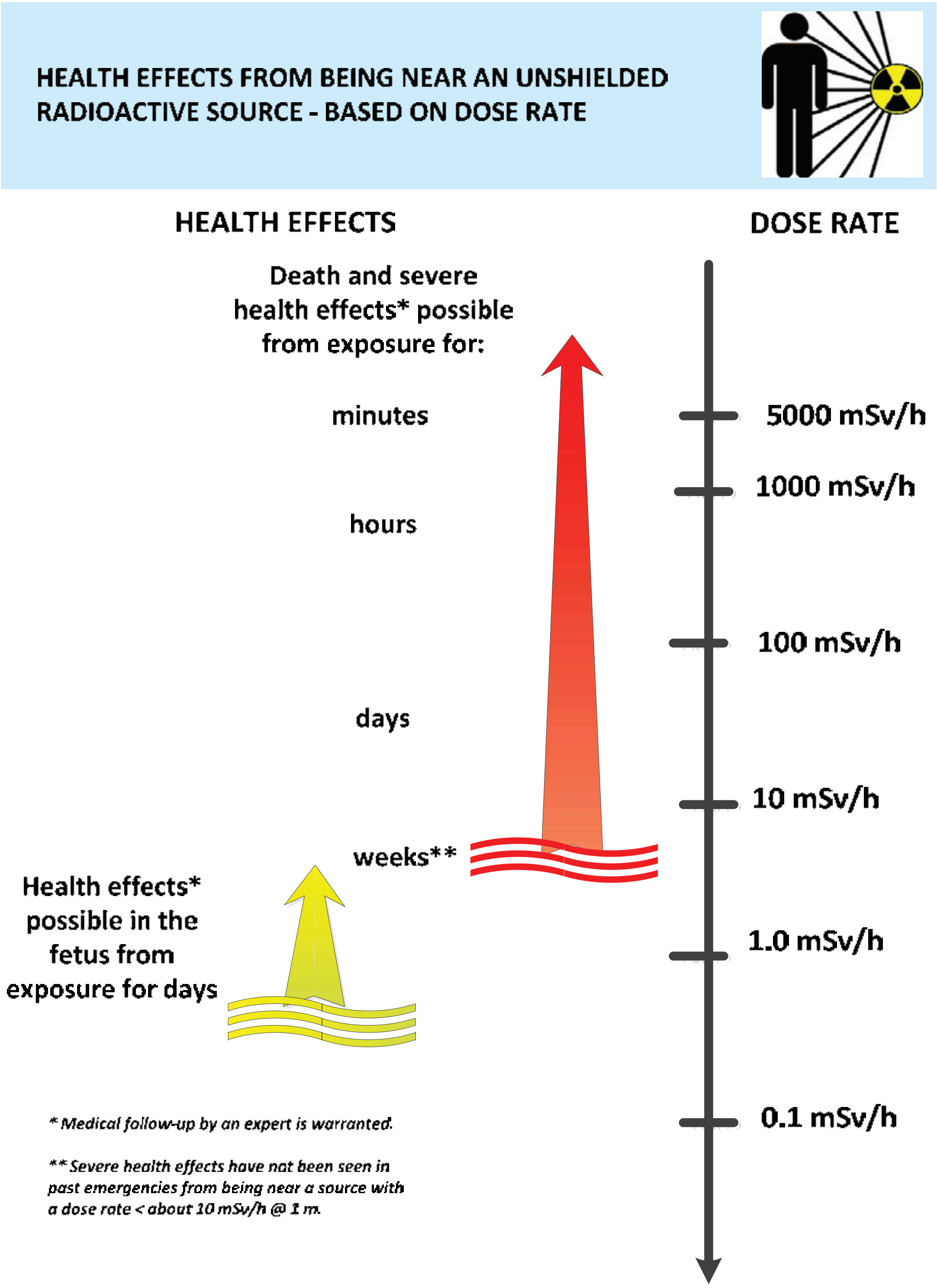

FIG. 11. Health effects from being near an unshielded radioactive source, based on dose rate.

Explanation of Figure 11: Health effects from being near an unshielded radioactive source

Quantity: Dose rate (mSv/h) in the area measured by a dose rate instrument (ambient dose equivalent).

Scenario: The person is conducting normal activities over the time shown, in an area where the dose rate is similar to that listed. In addition, there is no potential for ingestion or inhalation of radioactive material. If contamination is present or suspected, then the potential for health effects from inadvertent ingestion (from dirty hands) should be assessed by an expert in diagnosing and treatment of the health effects of radiation exposure.

Plain language explanation:

5000 mSv/h: Being in an area where the dose rate is more than 5000 mSv/h for more than a few minutes could be fatal.

1000 mSv/h: Being in an area where the dose rate is more than 1000 mSv/h for more than an hour could be fatal or result in severe health effects.

100 mSv/h: Being in an area with a dose rate of more than 100 mSv/h could result in fatal or severe health effects in less than a day.

10 mSv/h: Experience has shown that for those living for weeks in areas where the dose rate is more than 10 mSv/h could be fatal, and for pregnant women could result in doses to the fetus within hours or days of exposure requiring further medical assessment. Below approximately 10 mSv/h at 1 meter, deaths and severe health effects have not been seen in past emergencies [17].

0.1 mSv/h: Being in areas with doses above about 0.1 mSv/h for days to weeks could result in effects to the fetus warranting medical examinations by an expert in diagnosing and treatment of the health effects of radiation exposure.

Below 0.1 mSv/h: It is highly unlikely that there would be any detectable cancers or other severe health effects, even to the fetus, from being in an area with dose rates below 0.1 mSv/h.

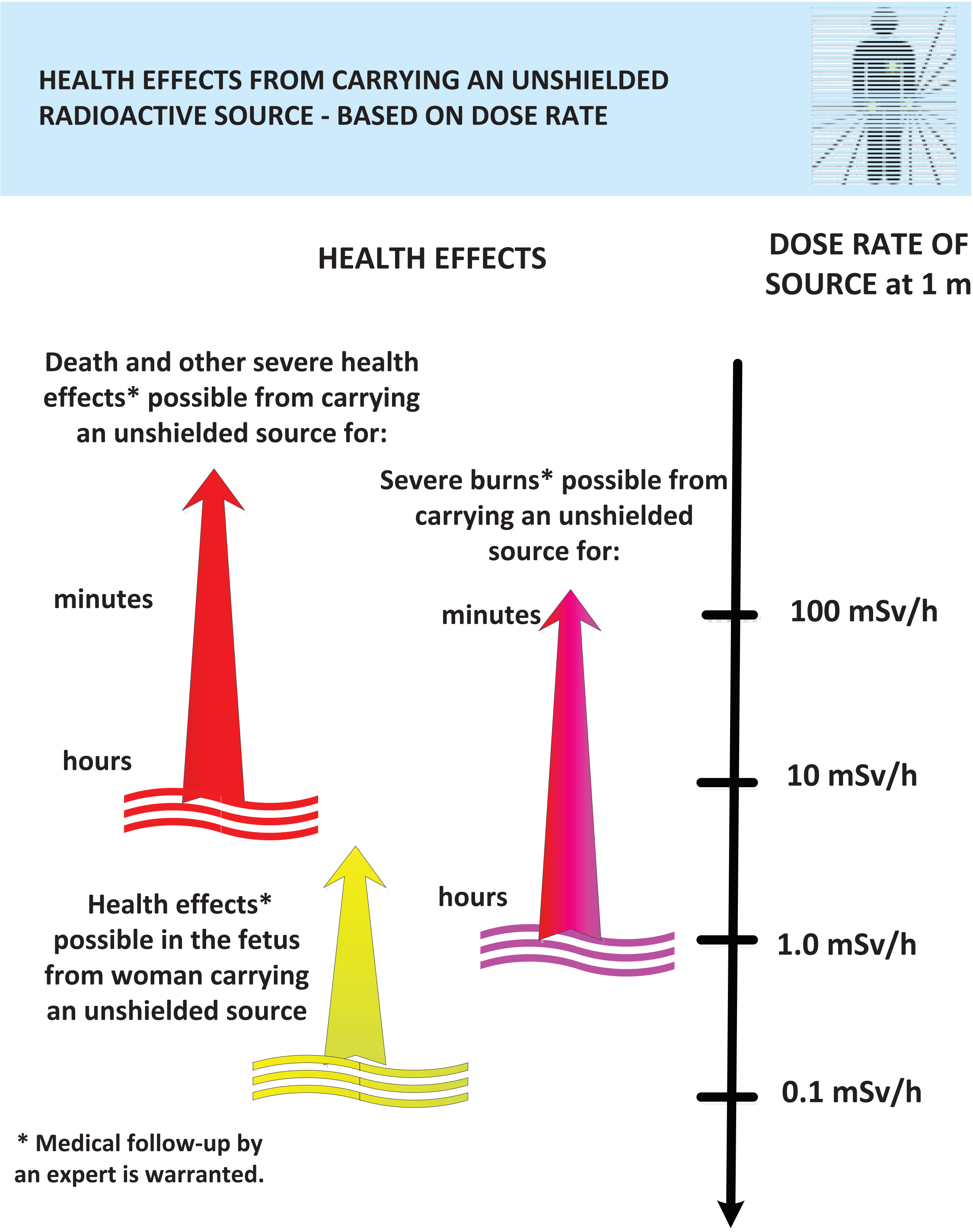

FIG. 12. Health effects from carrying an unshielded radioactive source.

Explanation of Figure 12: Health effects from carrying a radioactive source

Quantity: The dose rate (mSv/h) measured by a dose rate instrument at 1 m from the radioactive source (object) that was carried (ambient dose equivalent).

Scenario: The person was carrying the source (object) for the time indicated. The source is not leaking any radioactive material and therefore the person has not ingested any radioactive material. If the source is leaking, then the potential for health effects from inadvertent ingestion (e.g. from dirty hands) should be assessed. Ingestion could cause severe health effects including death.

Dangerous sources may become lost or stolen. There have been several cases in which prompt public announcements, by alerting the public of a hazard following the loss or theft of dangerous sources, resulted in the prompt recovery of the source, and thus the prevention of serious consequences. Physicians recognizing radiation-induced health effects have been the first to alert the authorities of many, if not most, emergencies involving lost or stolen sources.

Plain language explanation:

100 mSv/h: Carrying or holding a source (object) with a dose rate more than 100 mSv/h [4] for minutes could be fatal or result in severe burns and other severe health effects.

10 mSv/h: Carrying or holding a source (object) with a dose rate more than 10 mSv/h [5] for hours could be fatal or result in other severe health effects.

1 mSv/h: Carrying or holding a source (object) with a dose greater than 1 mSv/h [5] for hours could result in severe burns.

0.1 mSv/h: If a pregnant woman carries a source for hours with a dose greater than 0.1 mSv/h [5] it could result in doses to the fetus that require an expert medical evaluation. The health effects can only be assessed fully by an expert in diagnosing and treating the health effects of radiation exposure. Others, such as local physicians, probably will not always have the expertise needed to make such assessments.

Below 0.1 mSv/h: At doses below 0.1 mSv/h it is highly unlikely that there would be any severe health effects, even to the fetus, from carrying or holding the source.

General comments: Carrying or holding a radioactive source can result in severe health effects (e.g. severe burns requiring surgery) to the hand, skin and tissue next to a pocket holding the source. These burns may not appear for weeks and require specialized treatment (they are not the same as a burn from intense heat). Carrying a source will also result in exposure to the whole body and to the fetus of a pregnant woman.

Exposures possibly resulting in severe health effects require an immediate medical evaluation by experts in diagnosing and treating the health effects of radiation exposure.

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[4] Dose rate measured at 1m from the source (object). The dose to the hand or tissue is calculated assuming the source is at 2 cm and the dose from carrying a source to the whole body and fetus was calculated assuming the source is at 10 cm [17].

PC-IS.2. PIO PLANNING FOR NUCLEAR AND RADIOLOGICAL EMERGENCIES

Threat categories[5]

The first step for PIOs while planning a response to radiation emergencies is identifying the possible types of emergency for which public communications planning will be necessary. The IAEA has identified five threat categories for emergency planning [3], with Category I being the most severe and Category V the least severe (see Table 6). Planning in public communications should cover threat categories that exist in the area of responsibility of the PIO.

The information in the following table should not be used for communicating with the public. It should be used to determine the types of emergencies that might occur and to plan accordingly for them. For guidelines on public communications in specific types of emergencies, see section PC-AG.7.

TABLE 6. EMERGENCY PLANNING CATEGORIES

Threat Category	Description of where the category applies
I	Facilities, such as nuclear power plants, for which on-site events (including very low probability events) are postulated that could give rise to severe deterministic health effects off the site, or for which such events have occurred in similar facilities
II	Facilities, such as some types of research reactors, for which on-site events are postulated that could give rise to doses to people off the site that warrant urgent protective actions in accordance with international standards, or for which such events have occurred in similar facilities. Threat category II (as opposed to threat category I) does not include facilities for which on-site events (including very low probability events) are postulated that could give rise to severe deterministic health effects off the site, or for which such events have occurred in similar facilities.
III	Facilities, such as industrial irradiation facilities, for which on-site events are postulated that could give rise to doses that warrant or contamination that warrants urgent protective actions on the site, or for which such events have occurred in similar facilities. Threat category III (as opposed to threat category II) does not include facilities for which events are postulated that could warrant urgent protective action off the site, or for which such events have occurred in similar facilities.

[5] The term “threat categories” is used here as described in Ref. [3] and only for the purposes of emergency preparedness and response; this usage does not imply that any threat, in the sense of an intention and capability to harm, has been made in relation to facilities, activities or sources.

Threat Category	Description of where the category applies
IV	Activities that could give rise to a nuclear or radiological emergency that could warrant urgent protective actions in an unforeseeable location. These include non-authorized activities such as activities relating to dangerous sources obtained illicitly. They also include transport and authorized activities involving dangerous mobiles sources such as industrial radiography sources, radiothermal generators or nuclear powered satellites. Threat category IV represents the minimum level of threat, which is assumed to apply for all States and jurisdictions.
V	Activities not normally involving sources of ionizing radiation, but which yield products with a significant likelihood of becoming contaminated as a result of events at facilities in threat categories I or II, including such facilities in other States, to levels necessitating prompt restrictions on products in accordance with international standards.

Threat category IV applies to activities that can exist virtually anywhere and thus is the minimum level of threat assumed to exist everywhere. Threat category IV always applies to all jurisdictions, possibly along with other categories.

The characteristics of an emergency determine the approach needed to communicate about it. Consequently, it is convenient to divide the guidance for emergency preparedness and response into two groups:

(1) Nuclear emergencies, which may occur at facilities in threat categories I, II or III, depending on their on–site and off-site threats, may occur at:

- Nuclear reactors (power reactors, research reactors and ship reactors).
- Large irradiation facilities (e.g. industrial irradiators).
- Storage facilities for large quantities of spent fuel or liquid or gaseous radioactive materials
- Fuel cycle facilities.
- Industrial facilities (e.g. facilities for manufacturing radiopharmaceuticals).
- Research or medical facilities with large fixed sources (e.g. teletherapy sources).

(2) Radiological emergencies, which may result from activities in threat categories IV and V, can occur anywhere and so this guidance is applicable to all Member States. Radiological emergencies with the possible consequent public exposures and/or contamination may result from:

- Misuse of industrial and medical radiological sources from uncontrolled (abandoned, lost, stolen or found) radiological sources.
- Malicious threats or acts.
- Transport emergencies.

PC-IS.3. COMMUNICATING SAFETY IN EMERGENCIES INVOLVING SMALL DANGEROUS RADIOACTIVE SOURCES

The most common radiological emergency involves the loss, abandonment or theft of small, dangerous radioactive sources. These sources can be small shiny metal objects (about the size of a pencil eraser sometimes attached to a wire, see Figure 13) that fall out of an industrial radiography camera (Figure 14) used at construction sites. They can also be larger objects measuring a few centimetres wide and deep, for example from an abandoned radiotherapy unit that was used to treat cancers.

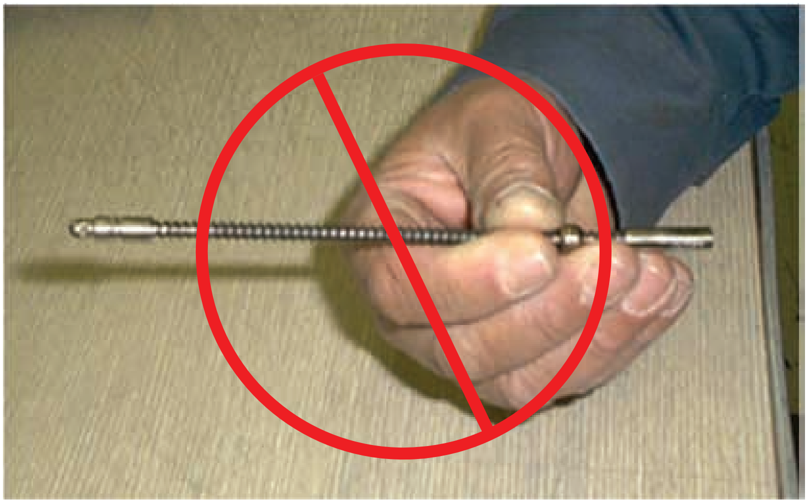

FIG.13. Very dangerous source from radiography camera (should never be picked up).

FIG.14. Typical radiography camera.

Figure 15 shows the most common ways people are exposed by these sources:

- Holding it or carrying it: carrying a source in the hand or pocket for only a matter of minutes can result in severe burns or lethal exposure.
- Being near it: these sources have been brought to homes or workplaces resulting in deaths from exposures that occurred over a period of up to several months.

- Ingestion of contamination from it: these sources may contain radioactive powder and, if damaged, this powder can be released, get on someone's hands and be inadvertently ingested. This has also resulted in deaths.

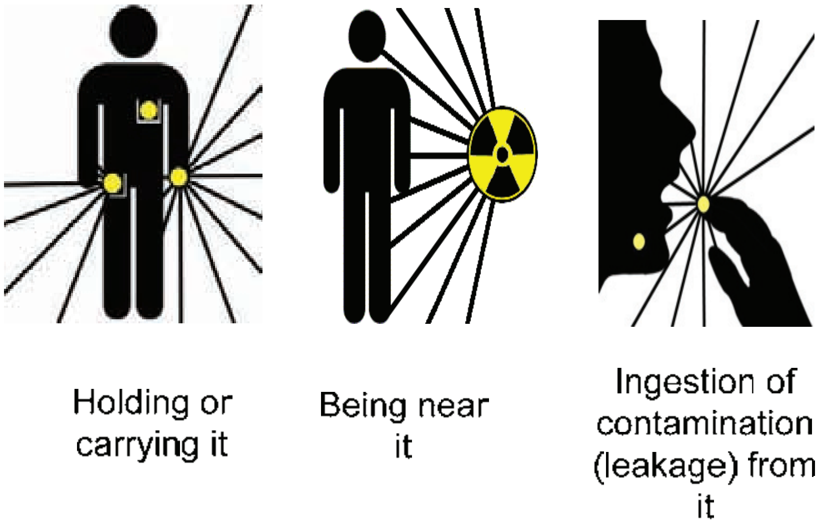

FIG. 15. Exposure pathways for a small dangerous radioactive source.

PC-IS.1 provides further information on the risks of sources.

The public needs to be aware of necessary clear protective actions, such as the following:

> To protect yourself, if you think an object is a radioactive source:
>
> - Do not touch or pick it up;
> - Keep away from the source at a distance of at least 30 meters;
> - Keep other people away from it (cordon it);
> - If you have touched it, been near it or been near someone who may have touched it, keep your hands away from your mouth and wash your hands before you eat, drink or smoke; and
> - Immediately notify local police or emergency services.

PC-IS.4. COMMUNICATING SAFETY IN A LARGE SCALE EMERGENCY

This Information Sheet is to be applied for a nuclear or radiological facility, such as a nuclear power plant[6], that could have emergencies resulting in doses off the site warranting prompt action to protection of the public and in contamination of tens to hundreds of square kilometres.

Communicating safety advice to the public

As information becomes available, the degree of safety should be quickly communicated to individuals and their families in the vicinity of an emergency. Communications should be in plain language that is easily understood. These provisions should be tested during exercises. If the situation is unsafe, the public needs to be advised of the protective actions to be taken. Individuals receiving information on their circumstances through the media, official advisories from the IC via the police or local authorities, or via hotline advice, web-site updates and social networks, want to know if they are safe, what they have to do, what conditions may change the current status and how long the emergency is going to last.

Precautionary protective actions

Facilities that could have emergencies resulting in contamination of large areas should have well-developed emergency arrangements that have been tested during exercises. For an emergency at these facilities, precautionary protective actions should be taken when conditions are detected in the facility indicating that a large release is possible and that the population nearby is at risk. The precautionary protective actions may include evacuation or sheltering. Precautionary actions must be taken promptly by the public when instructed in order to provide them the best level of protection. Therefore, the emergency arrangements at these facilities should include provisions for promptly warning the local population and instructing them on the protective actions to be taken. Experience shows that the media will become aware almost immediately when a major emergency occurs at the facility and as soon as the local population is instructed to take actions. Therefore, for these facilities, provision should be in place to have statements prepared in advance that support the protective actions recommendations and for addressing early and expected media and public inquiries. If these early inquiries are not adequately addressed it could interfere with the response and put the public and responders at additional risk.

Following a release

Following a release of radioactive material from the facility decisions will be made based on environmental measurements (monitoring) and sample analysis. Specific criteria, called operational intervention levels (OILs) will be established for the various types of monitoring and sample analysis results and if the OILs are exceeded then a particular response action such as evacuation or sheltering will be taken. The OILs are typically based on national or other dose criteria. Experience has shown that decision makers take actions and the public follow instructions based on these OILs best when they understand how the actions provide for the safety of the public [10]. Therefore a plain language explanation should be developed in advance that describes how actions taken based on the OILs provide for the public's safety.

[6] These would be facilities in threat categories I and II in Ref. [3].

PC-IS.5. RISK PERCEPTION

Basics of risk perception

The public has little knowledge and a great deal of uncertainty in any issue involving radiation. This can be attributed to a number of factors. This field of expertise is not readily accessible to the general public. At the same time, however, the effects of, for example, nuclear accidents are well known. The lack of knowledge means that most people are dependent on statements made by experts or the information communicated by the media.

The primary objective of a national emergency response organization (authority) should be to ensure the smooth implementation of the actions taken to protect life, health and the environment. However, this goal makes major demands on the response organization's credibility and trust in the eyes of the public. To be able to influence decisions and change behaviour, it is essential that all stakeholders be able to trust the information provided as complete and correct. In addition, people must know who the responsible authority is before the actual emergency takes place. Public communications activities must be visible; they must make an impact on the media so that a "recognition effect" is achieved. Thus, for an authority to be effective, it must have a good reputation, be seen as open and working in the public interest, as well as be well known to the public.

Effective risk communications involves two parts: the exchange process and the actual information about the risk. The two-way exchange process fosters a dialogue between those who may be affected by the risk and those who are charged with controlling it. Both the circumstances of the emergency and public perceptions of the risks involved drive this exchange process. Risk perception considers the difference between how risk is perceived by the public versus how the risk is actually assessed and measured by experts. Too often an assumption is made that public perception is wrong and the public must be persuaded that the technical assessment is in fact correct without first taking into account the different "common sense" factors on which the public's perception and assessment of risk is based. In fact, the goal of risk communication is not to force a change between the divergent views of the expert and the public, but rather to develop an understanding of these factors so that they may be considered and addressed. This requires an understanding of the underlying factors on which public perception of risk is based.

Trust and availability of information are the key elements for risk communication. To establish this trust, particularly during emergencies where the public may be asked to comply with protective actions, information provided to the public must not only satisfy their needs, but must also be provided in plain language so that it can be easily understood and facilitate their decision making.

Understanding the specific reasons why people feel the way they do about radiation emergencies is the key to more effective risk communication about such emergencies. Psychology provides robust scientific evidence to explain the specific emotions and motives involved in risk perception, and illuminate why some risks feel more threatening than others, regardless of the actual situation. The science which explains human risk perception is as robust and important to emergency response as the science of physics and medicine.

The distinct characteristics of a threat from radiation that must be understood and accounted for in emergency response public communications are presented in Table 7 and explained.

Though these risk perception characteristics are listed individually, a combination of several is usually involved in any emergency, depending on the circumstances.

TABLE 7. INFLUENCES TO THE PUBLIC'S PERCEPTION OF RISK [18, 19, 20]

Risk perception characteristics	Greater perception of risk	Lesser perception of risk
Media attention	A lot of media attention	Little media attention
Understanding	Scientific concepts difficult to understand	Easily understood concepts
Familiarity	Unfamiliar hazards	Familiar hazards
Scientific certainty	Lack of scientific consensus or uncertainty about situation	Scientific consensus or certainty about situation
History / Stigma	Accidents have already occurred	No accidents have previously occurred
Onset of effects	Little warning of onset of effects	Anticipation of onset of effects
Reversibility	Effects are not reversible	Effects are reversible
Trust	Lack of trust in officials and institutions	Trustworthy officials and institutions
Availability of information	Insufficient authoritative information	Sufficient authoritative information
Voluntariness	Compulsory; participation in the situation not dependent on individual will	Voluntary nature of participation in a situation
Control	Absence or limitation of possible personal influence on outcome of situation	Full or partial personal control of situation by individual
Fairness of risk distribution	Distribution of costs and benefits is unfair	Distribution of costs and benefits is fair
The origin of risks	Risks are the result of human activity	Risks are the result of natural events or processes
Catastrophic potential	Considerable number of injured people	Small number of victims
Personification	Risks are represented by a specific victim or potential victim	Risks are represented as an idea
Personal participation	The situation involves individual and his/her family	The situation does not have a direct relation to the individual or his/her family
Awareness	Lack of awareness	Awareness exists
Dread	A risk where the outcome involves greater pain and suffering	A risk where the outcome does not involve greater pain and suffering
Influence on children and future generations	Consequences representing a special danger to children and a threat to future generations	Consequences not representing a special danger to children or a threat to future generations

Expert vs. general public

When preparing to communicate about radiation emergencies, it is important to note that risk and acceptability mean different things to different individuals. It is fair to say that a gap exists between public and expert understandings of risk. This variation in risk perception is important to understand because if communicators do not take into account differences between expert and public perceptions of risk, this may reduce the success of risk communication.

Experts define risk in terms of cause and effect relationships and attempt to quantify the amount of harm that can result from taking part in a given activity.

When members of the public decide on whether or not they consider a risk acceptable, they take account of several qualitative issues. In this way it is possible for low probability 'real risks' to be converted into 'perceived risks' with an apparent high probability during the process of someone forming his or her own risk perception.

Human behaviour in emergencies

Contrary to the prevailing opinion connecting people's behaviour in emergencies with panic flight, regression, selfishness, and irrational behaviours, the truth is quite the opposite. People in danger can be very brave and unselfish. They can usually behave functionally, rise to the situation, and support their family, neighbours, colleagues and strangers. The problem with warnings or informing people of an emergency is not in causing a panic flight; more commonly, a threatened population tends toward normalcy or doing nothing. So communicators should not be afraid to warn people immediately about danger – the warning will not cause panic, but will prepare and/or guide people. Timely and adequate warnings also give people a sign that the situation is under control. The reason for attributing irrationality and panic to human behaviour in dangerous situations stems from failing to consider people's experiences, and what they know in such situations. It also depends on how they perceive the threat and whether they were warned in time. Panic reactions are actually rare, and therefore hesitation over whether to issue a warning (e.g. 'not to cause a panic') is not often warranted. In fact, people who have not been properly warned may be least likely to behave appropriately. Remember that family members want to stay together in their homes, especially parents and children, and this is both rational and understandable.

PC-IS.6. IMPORTANCE OF TRUST IN PUBLIC COMMUNICATIONS

The more trust people feel toward the staff and agencies managing an emergency, the less afraid they will be. If their trust in these people and agencies is lost, their fear rises. Any action or communication that damages trust, such as delayed, withheld, or misleading information, will raise public apprehension and actively contribute to increased risk to public health and wellbeing. Table 8 presents the positive and negative impacts to trust through message delivery, personal interaction, and institutional activity.

TABLE 8. FACTORS INFLUENCING TRUST [21]

Positive	Negative
Message	
Timely information	Delayed information
Consistent updates with accurate information	Inconsistent updates
Clear and concise	Full of jargon and overloaded
Unbiased	Biased
Takes into account public values, fears and concerns	Does not consider public understanding
Considers uncertainty	Does not consider uncertainty
From respected source	From questionable source
Organized message	Lack of structure
Use of metaphors	Uninteresting formulation
Explicit conclusions	Receiver make own conclusion
Positive information in the beginning of the message	Negative information is emphasized
Person	
Accepts uncertainty	Not accepting
Responds to public feelings	Not interested
Seems approachable	Nervous
Public can relate	Perceived as outsider
Personally engaged	Arrogant, distanced
Perceived as expert	Uninformed
Perceived as sincere	Dishonest, insincere
Charismatic	Lacking self-confidence
Credible, honest, altruistic and objective	Deceitful, unconcerned
Institutions	
Positive personal experience	Negative personal experience
Strong, competent leadership	Bad leadership, incompetence
Positive contact with staff and public	Poor reputation, staff strikes
Good environmental policy	Irresponsible environmental policy
Safe and good production, services	Low production, bad services
Positive image about past activity	Negative image about past activity
Reasonable taxes	Exaggerated prices
Dealing with socially relevant tasks	Lack of attention to social issues
Benefits greater than costs	Costs and risks greater than benefits

The Chernobyl Forum [22] highlights the importance of trust in stating "…the Soviet government delayed the public announcement that the accident had occurred. Information provision was selective and restrictive, particularly in the immediate aftermath of the accident. This approach left a legacy of mistrust surrounding official statements on radiation, and this has hindered efforts to provide reliable information to the public in the following decades."

There is an asymmetry in achieving and losing trust – it is hard to achieve it, but very easy to lose it.

Trust can be created through an awareness and identification of shared values and agreement.

Informing and communicating about risks is more likely to succeed when treated as a two-way process, when participants are seen as legitimate partners, and when people’s attitudes and “worldviews” regarding health, environment and technology are respected. This is particularly true in the case of a nuclear issue. Acceptance of risks is not a straightforward information or education issue, an opinion that often prevails in scientific/technical circles. It results instead from a communication exchange.

Role of fear

Organizations, governments or institutions should not think that delivering full information about a dangerous event would produce fear and panic. So they should not delay in giving out information via the best communication channels. They should give as much information as they can and must never misinform people about the situation. This will prevent panic and build trust.

PC-IS.7. KEY PUBLIC COMMUNICATIONS ACTIVITIES

Risk communication is more than words and messages. It is an implicit effect of the actions that emergency responders take and the policies they adopt.

During an emergency, the PIO is responsible for keeping the media and public informed and coordinating with all sources of official information to ensure that information provided to the media/public is consistent, accurate and timely. Depending on the complexity and duration of the emergency, this function may be undertaken by an individual or group.

In general, Member States using nuclear power or other significant sources of radiation will already have an organization responsible for public communications activities, which could take on this function during an emergency. For other Member States, this function may have to be developed as part of the overall emergency response plan. There will be heavy demand on public communications; therefore, it will be important to plan how to deliver key activities on a 24-hour basis over several days.

Key public communications activities during an emergency include:

- **Strategic Planning** - to develop the emergency specific communications strategy. This strategy should include at a minimum an analysis of the current public environment, identify any strategic issues that may affect how communications is undertaken, consider key messages and information to be communicated and why, develop the overall approach to communications and propose communications tools and information products to be used.
- **Media Relations** - to provide information to the media, to organize news conferences and technical briefings, to issue press releases, to correct rumours and to coach the spokesperson.
- **Media Monitoring** - to monitor traditional print and electronic media as well as new social media sources for accuracy of information.
- **New Media** - to develop information products and visuals for the internet and new social media sources.
- **Liaison and Coordination** - to coordinate information/messages and release of all information with other organizations, other levels of government, international agencies, and other relevant organizations.
- **Public Communications** - to provide information to the public through information products, information centres, telephone hot lines, email, and public meetings.
- **Internal Communications** - to keep employees informed about the emergency and what the organization is saying to the media and public about the response. (Due to high workload to address demands from the media/public, this may have to be delivered by another group - such as human resources/personnel).

To be effective, these public communications activities will have to be supported by appropriate experts who can provide technical advice in the development of all media/public information. The media spokesperson(s), usually technical experts who are both credible and good communicators, will also need to be designated. To maintain consistency, the number of spokespeople should be kept as small as possible, depending on the workload. During an emergency, demands from media, local, national and international will be intense and it is not feasible for one person to take on this role on a 24/7 basis. Where multiple spokespersons are used, it will be vital to ensure that information provided is consistent. Any inconsistencies may be picked up by media and could undermine the credibility of the emergency response.

Public communications in an emergency are more effective if steps are taken in advance. This includes not only establishment of plans, procedures and responsibilities, but research into public attitudes, design and pre-testing of messages, and even pre-emergency communication to increase target audience and media awareness to help them be prepared should an emergency occur.

During the preparedness and post-emergency recovery phases, time allows for the testing of messages, and surveys of public attitudes. This detection system is every bit as important as radiation detection testing of an affected site. Emergency responders do not guess at radiation levels at a contaminated site. Nor should PIOs guess at public attitudes. As time allows, these attitudes, the efficacy of actions and messages, should be tested, and revisions should be made as required.

PC-IS.8. RISK COMMUNICATION

Risk communication is any combination of actions, words and other interactions that incorporate and respect the perceptions of the information recipients. It is intended to help people make more informed decisions about threats to their health and safety. Communication could be defined as a process of message exchange in a personal, cultural and social context.

Risk communication is not only about providing other people with "correct" information, but about creating a dialogue and taking the different risk perceptions into account. The dialogue is a precondition for the various actors to be able to solve the problem together. For effective risk communication, one must determine the audience and the goal of the message, the channel and the communicator that can be used to reach the target audience, and one must be ready for feedback.

Risk communication primarily aims at:

- Informing and engaging the public.
- Encouraging behavioural changes and acceptance of protective actions.
- Issuing warnings about a danger and any necessary information.
- Exchanging information and establishing a common approach to risk.
- Risk governance.

The following factors in the communication process can be distinguished:

- *source*: who delivers the message.
- *message*: (verbal) information from the source.
- *channel*: means or media of communication, used by the source.
- *receiver*: audience to whom the message is intended.
- *effect*: possible effects of message (e.g. transmission of information, attitude or behaviour. change, decrease of fear or uncertainty, short and/or long term consequences).
- *feedback:* communication should be a two-way process.

To achieve effective risk communication, systematic planning in the following areas is essential:

- Development of a communication strategy aimed at specific target groups.
- Creating public communications plan.
- Focusing on evaluation review as an integral part of communication.
- From feedback received, improving the planning phase of communication and tactical goals on which the communication plan is based.
- Training and improving communication skills.

In developing any emergency related messages or other information, the pre-existing knowledge about radiation of the target audience and their level of literacy must always be taken into account. Specific audience segments, such as seniors, children, the disabled, and non-native speakers, may need specific consideration. Newspapers are an excellent example of clear communications. They use simple grammatical structure, explain all technical or unfamiliar terms and put the important facts up front. Because radiation is unfamiliar to many, explanations of basic concepts should also be included to provide a context and a rationale for the information being communicated.

As the emergency evolves, risk assessments may change or facts may need to be updated. In order to reduce potential problems with consistency which can lead to a loss of credibility and trust, when information is changed, it should be clearly explained what has changed and why.

PC-IS.9. COMMUNICATION FLOWS

In radiation emergency preparedness and response, the PIO works directly and constantly under the direction of the IC. Transmission of information must be strong, complete and effective on many levels, and it should correspond to the situational demands. Planning should not only focus on communication means (that is on *how* to communicate the message), but should also take into account all the demands connected with communication flows at the following levels:

Communication within your organization

During an emergency, the number of “inner users” of a communication system often drastically increases due to the changes required by the emergency. The information system in use perhaps cannot cope with these demands, as it may be overloaded. It could break down and information could be lost or delayed. During the emergency, information flows become more complex, less clear and slow (e.g. more people in the same position, new unusual tasks and people transferred to new positions). Normal communication channels are not adequate any more. Preparation planning could warn about these problems, and often creative solutions are necessary.

Communication between organizations

During the preparedness phase, contacts between different organizations are established and exercised. It may occur that new contacts come into play in an emergency creating the need for new information flows, which are not easy to establish and maintain. Planning should anticipate the organizations that would be involved in an emergency response. Training should therefore also emphasize the importance of working with unknown counterparts and when possible the counterparts should be included in exercises.

Communication from organizations to the public

During an emergency, organizations will have to deliver different types of information to the public. Organizations must consider what is important for the public and not what is important for the organization. Messages should reduce uncertainty. General content of the messages should be planned in advance, while details are the problem of tactical consideration.

Communication from the public to organizations (feedback)

The public often searches for help and instructions. The most exposed organizations often cannot effectively manage this increased demand for information, which could also disturb other information flows. Planning can help in anticipating information demands, sources of information and contact points for information delivery. The aim is to provide the consistent message: “One message, many voices”.

PC-IS.10. SOURCES OF INFORMATION

Sources of information for the public

The public responds positively to information provided by a source if it is considered to be credible. Information communicated must be consistent, authoritative and factual, and should reflect the information needs of the intended audiences. During an emergency, most people will be highly motivated receivers of information and actively seek it from multiple sources. However others may become apathetic due to the stress of the situation and not want to receive information even if they are at risk. Information about the emergency will be available from multiple sources, some informal, some with vested interests, and some credible. It is important to monitor not only what these other sources are saying, but also to adjust official information accordingly, either to address misinformation or add additional facts that have been verified.

Different sources of information have different goals, either regarding content or priority. There could also be differences in the intentions of the source and receiver.

The public will use a variety of sources when trying to obtain information about an emergency. This is an internationally recognized trend that must guide the way that we choose to communicate about complex risk issues. Individuals will obtain and compare as much information as possible from a variety of sources, ranging from local family members to international news outlets.

If the messages from various sources are sufficiently similar, members of the public tend to believe that they can trust the content and reliability. This can be communicated both verbally and physically. For example, directly observable, visible signs of consistency and reliability (e.g. police or public health identifiers such as badges and official seals) help spread messages the public will tend to trust more. Members of the public are also more likely to follow health advice if the community appears to be in crisis, which is communicated by the conspicuous presence of ambulance or other official bodies in their neighbourhood

Members of the public have different levels of trust in different sources. While some sources are highly trusted in most States, especially doctors or scientists, people often express high levels of suspicion and mistrust of companies, industry and politicians. These levels of mistrust are associated with a reduced likelihood of following the advice. However, a number of options for reducing mistrust and improving the likelihood of compliance exist, for example:

- Delivering information by an authoritative, trustworthy presenter or spokesperson capable of providing factual, scientifically sound and consistent information.
- Addressing the real needs of the public by answering questions with facts.

Sources of information for the PIO

Emergency response teams have to deal with the injured, respond to the ongoing emergency (fire, industrial accident or natural occurrence), and conduct radiation monitoring. They also have to coordinate tasks with the responsible parties at the site of the emergency, which may be at a nuclear power plant, an industrial site, a hospital or some other facility. Each of these functions provides a source of information for the PIO. Risk communication plans should include a list of these information sources, and their contact details, and establish and test mechanisms for actually communicating with these sources during an emergency. Sometimes the communication team will want to initiate the contact with these sources. Sometimes these sources will want to contact the communication team.

Your emergency organization will probably not be the only one involved in responding to the wide range of aspects of a radiation emergency. Local fire departments, hospitals, schools, public health agencies, environmental safety agencies, and food safety agencies, among others, will also be involved, depending on the nature of the emergency.

If public communications within your organization is operating as part of ICS, these other agencies should already be part of a plan to coordinate. It is important to coordinate communications with what these organizations are saying to avoid inconsistencies or conflicts. Make an inventory of other agencies and organizations that are, or might be, involved and establish contact with them. Establish communication mechanisms for emergency situations and appoint staff specifically assigned to just this task. This is particularly important during the early stage of an emergency.

Radiation emergencies are often more than local. Even the smallest incident, which may not even involve any actual danger or risk, can quickly stimulate interest and involvement from organizations around the world. Organizations at the local level will be involved, but so will agencies at the regional and national levels, like health, transportation, environmental, national security, and agriculture organizations. Organizations at the international level to consider include the IAEA, the World Health Organization, the Food and Agriculture Organization, and the World Meteorological Organization. These are all potential sources of information for the PIO responding to a radiation emergency.

Based on the risk communication inventory of the possible emergencies for which you are planning, identify all the organizations that might be involved, or interested, in the emergency. Collect necessary contact information. Establish and test mechanisms for communicating with them during an emergency.

Work out the following actions in advance.

- ❑ Identify who in your organization will be gathering critical information on the emergency (e.g. on radiation levels, injuries or deaths).
- ❑ Know who will be in charge of mobilizing resources and making plans for public actions like sheltering or evacuation.
- ❑ Collect contact information necessary to be in communication with these sources. Establish mechanisms for communicating with them during the emergency (landlines, mobile phone, email, and fax).
- ❑ Identify other organizations involved in responding to the emergency. Some may already be part of ICS but many will not.
- ❑ Include agencies at all levels of government, as well as international ones.

A lot of information will be available through the other sources that will be communicating about the emergency. These need to be monitored for three reasons. First, they represent many eyes and ears and they can help make you aware of circumstances or events your organization doesn't know about. Much can be learnt about what's going on from what these sources say. Second, the news media and social networks and bloggers will almost surely be getting some things wrong. Stay on top of rumors or misinformation and correct them quickly. Finally, it is important to know what others are reporting or saying because you may be asked about some event or circumstance that has been reported. Not knowing what is being reported can damage your credibility, and the public could lose trust and confidence in your organization. This could weaken your influence on public behavior as part of overall emergency response.

The news media can be very active in case of a radiation emergency and would be reporting from many places. They are a potential source of information and monitoring news reports can provide some valuable knowledge. The media can also provide information indirectly via the questions they ask, which can reveal what they know. In addition, the media will be a major source of information to the public and some of this information may not be accurate. The PIO should be aware of this in order to correct any misinformation, both directly to the media reporting the story and in general messaging to the public through various channels.

Online information media includes information and news sites, blogs, non-governmental organization (NGO) websites, and social media sites. These are particularly important to monitor for inaccurate information. Make a list of all the media and online sites to monitor. Set bookmarks for the online sites on a computer that can quickly be used to monitor such sites. When something new or important appears via any of these sources, ensure that there are mechanisms in place to bring that information to the right people in your organization. This can help all of those involved in the emergency response.

The general public will be a source of information to the communicator as well. This information can come from the things that people call or email about, especially the questions they ask. That can inform the PIO about events and circumstances people are observing which you and your organization might not know about. Also, and quite importantly, inquiries from the public are a good source of information, in real time, about how people are feeling. Although keep in mind that those who contact the agency are a minority of the whole population and are probably more anxious than most.

PC-IS.11. AUDIENCES

In communicating about radiation emergencies, it is important to note that the term “general public” is very broad and is best not considered as a single entity. The public is groups of people with their own interests, priorities and needs which may need to be addressed. A successful communication approach to one social group does not ensure that it will work well with another group. Therefore, for effective communication, the identification of all possible audiences should be made in the preparedness phase. Each emergency will have different audiences and these may even change during an emergency.

Audiences can be directly or indirectly involved in the emergency. Some of them may be more clearly and directly affected by the potential risks and consequently are dependent on the information communicated. Others may not actually be exposed to radiation but may claim to be interested or affected by the overall situation.

While only those exposed to radiation will be at real risk, others may be worried that they are also at risk. Quickly communicating appropriate information to these two groups should be a priority. Past experiences with radiation emergencies have shown that often the greatest drain on emergency medical resources is the “worried well”- people who seek medical attention when they have not been exposed or injured. To reduce this likelihood, information about who is and who is not at risk must be clearly communicated. It should be noted that in the case of terrorism involving radiation sources, public concern may be heightened by uncertainty about the potential for future malicious acts. PIOs should plan how to deal with this increased anxiety both in the development of the information and messages and in how to communicate in circumstances involving terrorism.

The following list will help to identify potential audiences (the sequence does not suggest a ranking or priority, nor is the list exhaustive):

- ❑ Those directly affected by radiation.
- ❑ Families and friends of those affected by radiation.
- ❑ Those who use the infrastructure in the affected area (e.g. schools for children, recreation park for retired people).
- ❑ Those who might be affected by decisions about protective actions.
- ❑ Emergency managers and first responders.
- ❑ Those measuring radiation.
- ❑ Decision makers.
- ❑ Those who can promote decisions related to radiation protection.
- ❑ Those who might obstruct decisions related to radiation protection.
- ❑ Those responsible for remediation of the contaminated area.
- ❑ Those not affected but who must be informed about the event by law, agreement or convention.
- ❑ Those who might suffer economically because of the emergency.
- ❑ Other organizations not involved in the emergency response but with a legitimate interest.
- ❑ Those seeking to visit the site of the emergency.

It is highly recommended to engage audiences in the preparedness phase. PIOs should concentrate on local relationships and interactions in order to understand the true drivers of trust, build it and maintain it.

Stakeholder groups have become a valuable way to involve the public in policy decisions. Successful stakeholder involvement will help to build trust, understanding and cooperation. If trust exists, or if trust is established, stakeholder involvement can be a very successful method of building confidence in other groups, resulting in more cooperation.

PC-IS.12. COMMUNICATION CHANNELS

Communications channels are used to transmit information, either en masse or targeted at specific audiences. Different audiences use and trust different channels, and the type of information should be appropriate to both the channel used and the intended target audience. Regardless of the nature of the emergency, different means of communication should therefore be available, ranging from landlines, mobile phones, e-mail and couriers to TV and radio stations.

News media can play a dominant role in all phases of an emergency. Not only are they the major information channel for the general public, communicating with various audiences, but they can also act as a "watchdog" for society by monitoring the emergency response. News media serve as a communication channel for the public both at the time of an emergency, and also later on - for example, during the clean-up of a contaminated site.

In an emergency, use of the local media can be the most efficient way to communicate with the local population. Multiple communication channels should also be considered; for example, messages can be targeted at young people via the internet and social media.

The PIO/Team varying degrees of control over different communication channels, as shown in Table 9.

TABLE 9. CONTROL OVER COMMUNICATION CHANNELS BY PIO/TEAM

	Degree of organizational control		
	Most control Organizational tools	**Less control Mass media**	**Least control Informal channels**
Channels			
Electronic	Web pages, call centre (hotlines)	TV, radio, media web pages	Mobile, phone, personal websites
Printed	Leaflets, fliers, brochures	Newspapers, magazines	Leaflets from other organizations /parties, letters
Personal contact (face to face)	Public meetings, personal warnings, PIC	Interviews, briefing centres	Meetings organized by other organizations /parties, visits

PC-IS.13. COMMUNICATION TOOLS

Guidelines on structuring a press release

Although news media can have various specific functions in different countries and regions, during emergencies they can be an invaluable means of communicating health and safety information to the public. Not only will a well-written press release help journalists fulfil this role, it will have a better chance of being used, if it provides information that meets their needs. This means that a press release should follow a news story form structured so that the most important, health- and safety-related news or message appears first and is followed by additional details.

The press release should include the date of publication, the location of the organization issuing the press release, contact persons and contact details. The first paragraph always includes the most important point, where the 'news' should be stated. Follow-up paragraphs should explain or elaborate in plain language on the main point in sufficient detail to ensure the news is understandable to a non-technical readership. Templates for press releases are provided in Appendix I.

For print media, if it is possible to personalize the information, i.e. if the spokesperson or the responsible official can be quoted as saying the 'news', the quote will make it more interesting to the reader. A press release should be as brief as possible: normally one page, at most two pages.

Communications professionals involved in nuclear topics often prefer a written form of communication because it is possible to shape and guide the message to provide precise details. However, it is not necessarily the best method to communicate with the public, and direct verbal communication is also encouraged during emergencies.

A good practice is to keep samples of good quality press releases on many topics. They can provide some ideas for the elaboration of a press release.

Periodic press updates

An alternative or complementary approach to the traditional press release can be used during a longer-lasting radiation emergency. As an emergency evolves, the PIO might deem it appropriate to provide information as it arrives, or on a pre-determined frequent schedule, in the form of a periodic update. This format follows the form and style of a traditional press release but offers shorter text updates describing specific developments as information about the emergency becomes available. An example is provided in Appendix I.

Periodic updates are then regularly posted in a cumulative manner (most recent message on top, older messages on bottom) on a dedicated radiation emergency website so that information is current and readily available.

All communications should be logged in the PIC and/or the EOC.

Purpose-built emergency website

Creating a purpose-built dedicated emergency website that is prominently displayed by the organization’s main website can help to ensure that the largest possible internet audience is informed during a radiation emergency. The surge in demand following a large-scale emergency will overwhelm most servers. Surge capacity should be configured to handle bandwidth demands that are at a minimum fifty times greater than average levels. External hosting agreements may offer cost-effective, instant-on capacity to host just the emergency pages. One way to ensure constant availability of information via the internet if website capability is overwhelmed or lost is to provide the same updates via social media.

This purpose-built website should be easy to update and the ability to edit should be shared with appropriate members of the communications team. It is imperative that the website have the ability to be updated and modified from a remote location in the event that on-site resources are unavailable. It should also be easy to post images, video, and hyperlinks so that all types of relevant data (e.g. maps, facility diagrams, relevant photographs) about the radiation emergency are accessible to the general public. Additional useful features for a dedicated emergency website include web feed capabilities (such as RSS[7]), easy-to-read functionality for mobile devices, and low-bandwidth design for usability where internet resources may be limited. An externally hosted emergency mini-website would satisfy these requirements. As an example, a screenshot of the IAEA Alert Log used during the response to TEPCO's Fukushima-Daiichi Nuclear Power Station accident is provided in Appendix I.

Press briefings

The PIO has the role of organizing a press briefing and is responsible for seeking approval by the IC and senior management to do so. A press briefing should be considered when there is significant information that needs to be communicated about the emergency to the media and the general public.

The press briefing should be moderated by either the Lead PIO or the spokesperson. Technical experts who can answer questions relative to their field of expertise should be available during the briefing to provide information and respond to questions posed by the media.

In advance of the media briefing, all presenters should discuss roles and responsibilities and determine which speaker will answer particular queries. Every effort must be made to ensure that messages are unified among all speakers before the press briefing begins, and appropriate preparation should be undertaken by the PIO and/or spokesperson to ensure that information is clear and consistent.

If press briefing speakers are not able to meet in person, a preparatory meeting can be conducted by teleconference. Presenters should be provided with as much coaching as possible on what questions to expect from the media. The PIO and/or spokesperson should also help technical experts to prepare concise, non-technical answers.

Once the briefing begins, all presenters (names, titles, organizations) should be identified for the media. The moderator should briefly introduce each presenter and their area of expertise and set an amount of time allotted for the briefing. The moderator may also give a brief summary of the radiation emergency details to date. Following this introduction, each

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[7] RSS stands for 'Really Simple Syndication' or 'Rich Site Summary'. RSS is a way of allowing web users to receive news headlines and updates on their browser or mobile appliance from selected websites as soon as they are published. (ref: http://dictionary.reference.com/browse/rss)

presenter might make a brief statement, after which the moderator will call for questions from the media (Q&A session).

In the Q&A session, the moderator should ask each media member to identify his or her name and media affiliation before asking a question. The moderator will bring the briefing to a close.

The PIO should arrange all preparations related to organizing a briefing room, sound system, phone dial-in access, video and/or audio recording, and language interpretation (if necessary). It may be useful to arrange for dial-in audio access for journalists who cannot attend the briefing in person.

The press conference room should be separate from the (EOC) Operations Room to ensure no interference with the actual emergency response operation. However, where possible the EOC should be visible to the press room.

Members of the media should be notified well in advance of the briefing by a media advisory, which should be prepared and approved following the same process as a press release.

The briefing should be recorded by audio and/or video (if possible) so that there is a verbatim record of the proceedings. A summary of key points could be prepared, in the form of a press release, for issue after the briefing.

Social media

The term social media applies to internet and mobile appliances primarily used for dialogue, content sharing and discussion. Social media are distinct from more traditional media in that they now reach a wider public in many regions. Social media can trigger swift, organized and massive public responses, require very little financial investment to implement, and can be accessed and updated almost instantaneously. In contrast, the human resource costs of maintaining an effective and ultimately beneficial relationship with the public via social media is as large as the existing investment in public communications personnel. In an emergency, public activity may surge by a factor of 100 times or greater. Monitoring, responding to and leading the social media dialogue requires a dedicated team, a clear set of editorial guidelines to maintain decorum and protect free expression, and prior experience in managing social media outreach.

For the purposes of this publication, social media applications refer to internet- and mobile-based tools such as blogs, podcasts, social networking sites, and other relevant communications applications.

Social media allow for instant and direct two-way communication between people and organizations. The primary difference between an organization’s website and a social media platform is that social media allow your audience to react and respond to information that is provided. A sample of how the IAEA has used social media in emergency response is provided in Appendix I.

The two-way social media communications model holds benefits and risks for an organization. It is strongly recommended that an organization conduct a thorough analysis of these benefits and risks before implementing a social media strategy. Before a social media presence is created, an organization should establish:

- ❑ A clear and consistent strategy for types of information to be provided;
- ❑ Ownership and assignment of duties to update and maintain social media outlets; and
- ❑ Rules of engagement for how to respond and react to commentary by the general public.

Furthermore, it is strongly recommended that an organization does not undertake the creation of a new social media channel during a radiation emergency. A communications team must have experience using social media tools during normal operations to be prepared for the surge in activity and response that may arise during a large-scale radiation emergency.

Comments by the public may be enabled for a social media resource but should be monitored closely on a daily basis. Comments would be sent to a manager of the social media resource. In the interest of transparency, it would be advantageous to implement a set of guidelines that the audience must follow when responding to comments. For possible guidance, as an example*: "Racist, abusive or threatening posts are not acceptable and will be removed by our moderators. We aim to respond to all legitimate complaints/comments as soon as we can."*

Hotline

The general public requests information from official organizations about radiation, health effects etc. In order to respond to these inquiries, it is necessary to open a health counselling hotline and/or general counselling hotline on a radiation emergency to provide health counselling and disseminate correct information. The number of staff and telephone lines needs to be increased to avoid becoming overwhelmed at the initial stage of the emergency.

It is useful to provide common information on official websites as Frequently Asked Questions (FAQ), because many questions and inquiries overlap.

A health counselling hotline can expect to receive comments and feedback on emergency management, hostility/outrage calls, and offers of advice from public and self-appointed experts. Also, medical staff (e.g. clinic doctors, dentist, nurses, etc.) might call a hotline to ask whether it is safe to treat or receive patients evacuated from the site of a radiation emergency.

Examples of FAQs received via hotline in case of an accident at a nuclear power plant

- ■ Please explain the meaning of the numerical values reported by the media.
- ■ What kinds of actions should be taken to decontaminate radioactive materials? Can they be taken at home?
- ■ I am pregnant. Am I going to be affected by radiation?
- ■ I live in a city 200 km from the accident site. Is it better to avoid going out? I understand the radiation level is going up. Is it safe?
- ■ Is it safe to receive an evacuee from the accident site?
- ■ I am a patient with hyperthyroidism under treatment. Will local tap water containing radioactive iodine have a bad effect on my health?
- ■ How does radioactive iodine affect the body once it has been ingested?
- ■ I am still worried even when radioactive substances detected in vegetables are within the regulated range of safety. Is there any effect on pregnant women or on children?

- The media are reporting that food has been contaminated by radiation. Are there any precautions we should take when eating vegetables and other foods?
- I have heard that radioactive substances have been detected in tap water, but I drank it without knowing it. Am I all right? May I use water to have a shower, gargle, brush my teeth, etc.?
- Can I open a window?
- I wish to take a radiation exposure measurement (contamination screening, Whole Body Counting). Where can I take it?

Trained staff should be readily available to answer incoming phone calls and to provide callers accordingly with the information requested or tell them how to find it. Hotline staffers should be prepared to provide accurate and clear information on many topics related to an emergency. Below are topics that may be likely points of general interest during a large-scale radiation emergency.

Potential topics of interest during large-scale radiation emergency

- Radiation safety measures.
- Evacuation conditions.
- Conditions of facility and/or radioactive material.
- Travel restrictions.
- Environmental impact.
- Offers of assistance.

A pre-recorded message on the hotline can provide callers with immediate information and filter the number of people who will need personal assistance. The information should include the most up-to-date protective actions and guidelines.

Where the capability is available, authorities may have the ability to widely broadcast text messages with emergency information to mobile devices.

Managing public reactions

Health and environment issues stemming from radiation emergencies can provoke strong emotions, including anger and hostility. To handle these reactions effectively, PIOs should remember that:

- Hostility is usually directed at communicators as representatives of an organization/administration, and not at them as individuals; and
- Dealing ineffectively with hostility can erode trust and credibility.

It is necessary to acknowledge the existence of hostility, control apprehension, listen and be prepared. It is best to plan, prepare and practice presentation of the issues. PIOs need to anticipate questions and answers, and to communicate empathy and care. They should be able to recognize people’s frustrations, listen to them and answer their questions carefully. In general, establishing trust between parties, displaying openness and honesty, communicating timely information and having a good record of past relationships, all serve to counteract hostility.

Media monitoring

During an emergency, monitoring the media and other sources (non-news Internet sites, advocacy groups, other government agencies, blogs and other new media) for information being reported will be vital. Not only can this be used to assess the effectiveness of communications efforts and media pick up of emergency related messaging, it can also be used to detect any rumours or false information that may be circulating about the emergency.

PC-IS.14. RUMOURS AND RUMOUR CONTROL

It is important to monitor and collect information on rumours in the news media or public domain. This could be in the format of a simple tracking list. Depending on the scale of the emergency, the establishment of a rumour control centre may be necessary. This centre could be located within the PIC (see Section 2.2.).

The larger the scale of the emergency, the more sources of information there are. PIOs must be aware of what other sources are saying about the emergency, for three reasons:

- Other sources may have important and valuable additional information.
- Other sources may be reporting things inaccurately. The longer those inaccuracies go uncorrected, the more they get repeated and taken as truth.
- If other sources are reporting aspects of the emergency and your organization is unable to address them when asked, you will appear incompetent, badly damaging public trust and communication efficacy.

Rumours appear when a group tries to make sense of an ambiguous, uncertain or chaotic situation. Rumours may spread through mass media, internet, in oral communication and individuals may transmit them to a number of persons. Rumours will spread depending on their attractiveness, the uncertainty of the situation, lack of information, and the existence of a cohesive social group. With certain strategies the start of a rumour can be prevented, with others a rumour's credibility can be lowered or its spreading avoided. Providing clear and transparent information to the public is crucial.

Although there is no recipe to fight rumours, some guidelines exist:

- ❑ Continue to provide frequent and complete information to the public.
- ❑ If necessary, organize a rumour control centre, for detecting, following, and responding to rumours.
- ❑ PIOs should be trained to cope with rumours. Take into account what kind of rumours would be the most devastating for your organization. Study similar rumours.
- ❑ Build strong and positive relationships with the public so that rumours may be doubted if not rejected.
- ❑ Ensure good internal communication within your organization, so that it does not itself become a fertile ground for rumour growth.

In order to best correct or counteract a rumour, it is recommended to reiterate the facts through official message dissemination rather than simply reject the rumour. Even acknowledging or mentioning a rumour may add to its spread. Rumour control should begin as soon as possible because it becomes more difficult to control a rumour as it continues to spread. The more people hear a rumour, the more likely they are to believe it. A rumour can be neglected only if it is harmless or if it can be judged to fade by itself.

False alarms

A false alarm — a situation when warning about a certain danger is issued when nothing has really happened — can present a significant problem in risk communication. It can cause unnecessary fear, bring resources to a place where they are not needed and potentially divert emergency responders away from legitimate emergencies. Over time, repeated false alarms in a certain area may cause people to start to ignore all alarms, knowing that each time it will likely be a fake. Simply stated, the more false alarms, less people will trust risk organizations and their communications. The consequences can be serious for radiation issues since the consideration of warnings is of tremendous importance for survival.

False alarms occur for different reasons: rumours, mistakes and errors of different kinds (e.g. lapses, misunderstandings or wrong estimations), changes in an emergency’s development and overly sensitive monitoring equipment.

To prevent serious consequences from false alarms they must be recognized as soon as possible and response should immediately follow, including information about the real situation and reasons for the unnecessary alarm.

PC-IS.15. DEVELOPING MEDIA RELATIONSHIPS

Given the fast-developing nature of a radiation emergency, it is important to have well-established relationships with key media outlets already in place. This means having the news media's contact information, and making sure they have yours.

In order to encourage accurate and fair coverage of the emergency, a relationship based on some degree of personal contact should exist before it occurs. Meeting with news media personnel in advance (editors who will stay in their newsrooms, as well as reporters who will be out at the scene actually covering events) can be helpful. However, bear in mind that their job is to report what is happening and they have to work to tight deadlines. It may therefore be best to visit them to establish good personal contacts. Expenditure of some resources in this way can be a valuable investment. Given that the radiation emergencies are generally infrequent, it may be helpful to maintain this contact via periodic meetings, e-mails or phone calls. Staff turnover in the journalism field is also quite frequent, so building and maintaining these relationships should be an on-going focus.

While having working relationships established in advance is good basic practice, it is impossible to maintain them with all the news media outlets that might cover an emergency. A priority list should be established, based on how large their audiences are, (such as major television stations and wire services) and on how responsibly they behave in normal circumstances.

The mass media are a useful channel to communicate emergency related information to a broad range of audiences. Media can be specifically selected to reach certain audiences by their interest or location. It must be kept in mind, however, that the media do not just transmit information directly; they determine what will actually be reported according to their own agenda. Media are in the business of selling news to generate revenue and this will strongly influence how and what they report. They also see themselves as the voice of the public — raising concerns that are in the public interest. During the early phase of an emergency, media are generally more likely to report facts without any challenge. Over time however, this may change as the media will become more analytical in their reporting and in their assessment of the emergency response, often raising concerns or issues being expressed by the members of the public or other interest groups. How quickly this change occurs may depend on the severity of the emergency, but is also strongly influenced by the overall level of trust and perceived credibility of the response organization both before and during the emergency.

Prior to an emergency, the media can also be used as part of overall efforts to build public awareness and knowledge about radiation safety issues and emergency response measures. There may also be opportunity to engage the media, through briefings, events, tours and exercise simulations to improve their knowledge of the subject matter prior to an emergency.

Organizations should work to build positive relationships with the media in advance of an emergency. If the media have never heard of an organization or if it is regarded as difficult to get information from, reporters may go elsewhere for information during an emergency. Being accessible to media, providing timely responses and being open and upfront with day-to-day media relations will go a long way to establishing an organization as media-friendly. Proactive media relations — having effective and knowledgeable spokespersons available for interviews on a variety of topics with key media (science, health and environmental reporters) — can also help solidify positive relations.

To satisfy media needs for visuals during an emergency, PIOs should consider producing print quality photos and broadcast quality video footage that may be helpful to visualize what is happening. If this is not practical or possible, consideration should be given to a media pool during an emergency, where a small number of cameras are permitted access to film, but are required to share footage or photos with all journalists.

The more significant the emergency, the more constant the news coverage will be. If the emergency response officials are not communicating for any period of time, even as little as half an hour in a large scale crisis, the 24/7 demands of the media news cycle means that they will fill that vacuum with whatever information they can get from other sources, such as on-the-scene commentators, personal reaction interviews, new developments (rumours or otherwise), critics, etc. This information may or may not be accurate and could also undermine response objectives. Therefore, PIOs should offer regular updates, even if sometimes this means that there have been no new developments. This will be particularly important during the initial phase of the emergency response.

Therefore the following guidelines regarding media should be considered:

- ❑ Emergency planning process needs to include special considerations regarding relations with the media.
- ❑ Determine the audiences of particular media outlets and their preferences, so that during an emergency the most effective outlet will be used. Remain aware that social networking also drives the warning process.
- ❑ Be prepared for different demands and interests of local, regional, national and international media; the first will search for special, practical information important for local populations, while the latter focus on satisfying wider global interests.

PC-IS.16. TRAINING THE MEDIA ON RESPONSE TO A RADIATION EMERGENCY

Training for the media is important, since they usually recognize the need to establish facts. The media can also recognise that they could be in personal danger in covering a radiation emergency. Establishing media relationships in advance should include offering factual training about radiation emergencies. This training should be offered at a location and on a schedule most convenient to the media outlet. The information offered in these training sessions should be simple, understandable to non-technical people and relevant to the news media. For example, the media will want to know about safe access to the scene of an emergency, or what types of personal safety protection they might need, in addition to understanding the radiation basics of the situation.

These training sessions should provide resource materials to which editors can refer in an emergency, or which reporters can take with them to the situation they have to cover. This material should be concise and relevant, for example short pocket guides or quick reference pocket cards. It should include contact information for emergency response authorities, especially the PIO.

Because job turnover at most media outlets is frequent, the training should be offered periodically to maintain good contact. Whenever possible, the news media should be invited to participate in emergency exercises. Many news outlets tend to decline such invitations, stating the need to be independent from the organizations they report on. It may help to point out that the exercises could help them prepare for coverage of an emergency in which their personnel will need to report.

Besides the authority, operators should also organise regular meetings with the media who cover their plants on a daily basis, those media who may cover the plant during an emergency, and those media who have interest in such training. The purpose of these meetings is to familiarise the media with the following:

- ❑ Current status of facilities and activities involving sources of ionizing radiation.
- ❑ Basics of nuclear power operations.
- ❑ Overview of nuclear industry issues.
- ❑ Basics of radiation.
- ❑ Emergency planning and response facilities.
- ❑ Emergency exercises.
- ❑ Points of contact during an emergency.
- ❑ Co-ordination among responding agencies.

PC-IS.17. GOOD PRACTICES FOR PIOs

Empathize and respect the emotions of your audiences

When communicating with the public, communicators must be sensitive to and acknowledge people's concerns. They should understand the specific risk perception factors that may drive those concerns. The more threatening the situation feels; the more vital this is, because chemical changes in the brain will rise as stress increases, impairing cognitive ability. The emotional impact of the emergency plays an important role in how it is perceived.

Be honest and open

Communicators should be upfront with information and provide as much as possible as early as possible. If some information cannot be released, as may be the case with acts of terror, they should explain the reasons why it is being restricted. Being honest and open means not only being truthful in what is said, but also being forthcoming with information. This helps to maintain trust relationship between the response organization and the public.

Give people things they can do

Communications should strive to give people a sense of control over their own well-being. Remembering that public perception of risk decreases when there is control over the risk, emergency response procedures should include actions the public may take, such as places people can go for care, actual physical steps people can take to protect themselves (shelter-in-place, iodine tablets, evacuation), or ways that people can get more information and stay informed of on-going developments. Messages should stress this type of empowering options where feasible.

Avoid absolutes

Command-and-control organizations, like emergency response organizations, often feel they must demonstrate control by stating things firmly, such as "we have the situation under control" or "it's safe". Such absolutes may pose problems if advice or assessments change as the emergency evolves. It will be important to provide messages that allow for changes should circumstance warrant.

Admit uncertainty

If communicators don't know something, they should say so, rather than claiming to know and only later being found to have been less than truthful. Demonstrating honesty by acknowledging uncertainty actually creates trust, which may outweigh any questions about competence that such an admission normally might cause.

Risk comparisons are risky

Because risks give rise to different emotional responses and as a consequence how they are perceived, comparing one risk to another may not be effective and may actually undermine the credibility of the communicator. This is especially the case if risks are compared on only their statistical similarity, rather than their perceived similarity. Thus comparing the cancer risk for an exposed person during an emergency to the same risk for a radiation worker would be better than comparing it to cancer risk from smoking.

Be careful with use of numbers

Because risk perceptions are informed by feelings as well as facts, using only facts (statistics and numbers) ignores and discounts how people are feeling. Research has shown that even quite well-educated people often don't understand numbers. And for every statistic where there is a one-in-something chance of risk, there will be people who see themselves as the one. Numerical information can be used, but must be made simple and clear. It should only be used as one means of describing the risk, as one tool to help people assess risk for themselves rather than something definitive.

Anticipate outrage

Where a hazard creates a sense of public outrage, it will be seen as less acceptable and perceived as a greater risk than the hazard itself. The potential for public outrage is real for radiation emergencies. PIOs should be prepared to address the emergency itself but also pay attention to the feelings of the public in how and what is said.

Don't delay: the importance of framing

First impressions of a situation are vital to all the perceptions of that situation which follow. PIOs should take the initiative in framing what people know about the event or risk, essentially painting the first picture of the circumstance in people's minds, since that is the frame of reference against which all subsequent information will be compared.

Never say 'no comment'

The middle of a looming crisis is not the occasion to say "No comment." "No comment" should almost never be used by a risk communicator. The phrase suggests a lack of candour conveys a sense of secrecy and connotes that you know something that you are either not willing or not allowed to share with the public, creating scepticism and mistrust.

PC-IS.18. COMMUNICATING ON LONGER-TERM PROTECTIVE ACTIONS

A large scale emergency will involve the implementation of longer-term protective actions, which require continued efforts in public communications.

Where possible, information on radiation risks should be communicated by one authoritative organization, even if more than one is involved. A multi-agency response with one spokesperson on risks can establish clarity of ongoing communications with the public.

The following factors will need to be included in communications on longer-term protective actions:

- ❑ Description of the possible pathways by which people could be exposed to radiation from residual contamination and any necessary protective actions.
- ❑ Estimates of radiation doses to people should be made using the best available data and updated regularly in light of monitoring.
- ❑ Explain the possible health implications of the doses received.
- ❑ Comparison of estimated radiation doses with doses from other sources of radiation, natural radiation and medical practices being helpful examples.
- ❑ Clear explanation of the risks from radiation exposure, including acute and long term risks, in straightforward language.
- ❑ Clear communication strategy for publishing the results from a monitoring programme that may have been set up.
- ❑ Provision to the public of detailed results of radiation monitoring tests and what the results mean in terms of risk to health.
- ❑ Provision of information on how the public can protect themselves and their families.
- ❑ Provision of information on the effectiveness of the clean-up measures.
- ❑ Clear explanation of and communications on food restrictions that may last far longer than any other protective actions, because of the internal dose pathway.
- ❑ Clear explanation of any special considerations about animal welfare.

Appendix I
Templates and Samples

Holding Statement ***(For use before specific information is available):***

Date: [date of issue] …………………………….. [Press Release Number] ………………….

Time: [time of issue] …………………………...

[Organization name] confirms that it has received a report of [nature of event]. According to the information received at this time, the [event] occurred at [time and location]. Reports indicate that [any confirmed information on the event] and that [any initial measures] measures are being taken to protect [the public, responders, products, trade, or specify as appropriate]. The [specify plan as appropriate] emergency plan has now been activated [and we have activated our Public Information Centre].

[Organization name] is coordinating its activities with responders now at the scene and other involved agencies [specify as appropriate]. We will be providing further information as soon as it becomes available. [Provide details on timing of any updates or briefings].

For further information:

Name [name of contact for the media]:
Title [title of media contact]:
Organization:
Telephone:
Mobile:
Email:
Website:

Press Release
(for a radiological emergency to include RDDs and transport emergencies):

Date: [date of issue] …………………………….. [Press Release Number] ………………….
Time: [time of issue] …………………………...

[Organization name] confirms that an emergency has occurred [nature of event] that [possibly] involves radioactive material. According to the information received at this time, the [emergency] occurred at [time and location]. Reports indicate that [any confirmed information on the event] and that [any initial measures] measures are being taken to protect [the public, responders, food, products, trade or specify as appropriate]. The [specify plan as appropriate] emergency plan has now been activated [and we have activated our Public Information Centre].

The public is advised on the following:

- Do not handle any possible radioactive item [fragment from a bomb or any item picked up at the scene].
- Those who left the scene without being assessed by the [specify] should change their clothing, shower (if possible), wash hands before eating and go to [specify] to be assessed and receive further instructions.
- Anyone who transported anyone (e.g. injured persons) must go to [specify the place] for individual monitoring and monitoring of vehicles for contamination.

[If an airborne release is suspected (specify, depending on scenario)] the public within about 1 km of [specify local description – roads, districts – that will be understandable to the public] are advised on the following:

- Remain inside until [specify when any actual or possible release will be over].
- Do not eat or drink anything that may have been contaminated (e.g. vegetables grown outside or rainwater) until informed otherwise.
- Make sure that children are not playing on the ground.
- Wash hands before eating.
- Avoid dusty areas or activities that will make dust.
- Do not be concerned about those evacuated (they are not dangerous to be near).
- Do not go to the scene to volunteer or to help. If assistance is needed, announcements will be made.

If you have a health concern go to [once available specify a location away from the local hospital where monitoring will be performed and questions answered].
Medical practitioners should be alerted for patients that have symptoms of radiation exposure [burns with no apparent cause — the person does not remember being burned].
If you have any questions please call [give a hot line number where large number of calls will not interfere with the response].
We will be providing further information as soon as it becomes available. [Provide details on timing of any updates or briefings].

For further information:
Name [name of contact for the media]:
Title [title of media contact]:
Organization:
Telephone: (land line and mobile) Email:
Website:

Press Release (for a lost or stolen source):

Date: [date of issue] …………………………….. [Press Release Number] ………………….
Time: [time of issue] …………………………...

[Organization name] confirms that a dangerous radioactive item was lost/stolen [specify]. According to the information received at this time, it was lost/stolen [specify] at [time and location]. The [specify the governmental organization leading the response] is [specify initial measures being taken (e.g. conduct a search)] and is asking the public for help in finding this dangerous item. The [specify plan as appropriate] emergency plan has now been activated [and we have activated our Public Information Centre].

The item looks like [describe and provide picture or drawing if possible].

The public is advised on the following:

- This item is very dangerous. If found, it should not be touched and all persons should stay at least 10 metres away from it.
- Those who may have seen the item should immediately report to the [specify].
- If you touched or have been near the item you should contact [specify a phone number where large number of calls will not interfere with the response].

Medical practitioners are advised of the possibility that patients may appear with symptoms of radiation exposure [burns with no apparent cause — the person does not remember being burned].

Scrap metal dealers and buyers of used metal items are asked to be on alert.

If you believe you have information that may be helpful, please call [give a hotline number where a large number of calls will not interfere with the response].

We will be providing further information as soon as it becomes available. [Provide details on timing of any updates or briefings].

For further information:
Name [name of contact for the media]:
Title [title of media contact]:
Organization:
Telephone:
Mobile:
Email:
Website:

Press Release
(for discovery of dangerous source in a public place (e.g. customs or post office)

Date: [date of issue] …………………………….. [Press Release Number] ………………….
Time: [time of issue] …………………………...

[Organization name] confirms that dangerous radioactive material was discovered at [specify]. According to the information received at this time, the material was discovered at [time and location]. Reports indicate that [any confirmed information on effects] and that [any initial measures] measures are being taken to protect [the public or specify as appropriate]. The [specify plan as appropriate] emergency plan has now been activated [and we have activated our Public Information Centre].

The public is advised on the following:

- Those who may have been near to where the material was found within the past [specify time interval] and/or may have been near to it while it was being carried/shipped [specify details] should contact [specify] to be assessed and receive further instructions.

Medical practitioners are advised of the possibility that patients may present with symptoms of radiation exposure [burns with no apparent cause — the person does not remember being burned].
If you believe you have information that may be helpful, or questions, please call [give a hotline number where a large number of calls will not interfere with the response].

We will be providing further information as soon as it becomes available. [Provide details on timing of any updates or briefings].

For further information:
Name [name of contact for the media]:
Title [title of media contact]:
Organization:
Telephone:
Mobile:
Email:
Website:

Samples

Periodic Press Release

Fukushima Nuclear Accident Update (11 March 2011, 11:45 UTC)

The IAEA's Incident and Emergency Centre has received information from Japan's Nuclear and Industrial Safety Agency (NISA) that a heightened state of alert has been declared at Fukushima Daiichi nuclear power plant. NISA says the plant has been shut down and no release of radiation has been detected.

Japanese authorities have also reported a fire at the Onagawa nuclear power plant, which has been extinguished. They say Onagawa, Fukushima-Daini and Tokai nuclear power plants were also shut down automatically, and no radiation release has been detected.

The IAEA received information from its International Seismic Safety Centre that a second earthquake of magnitude 6.5 has struck Japan near the coast of Honshu, near the Tokai plant.

The IAEA is seeking further details on the situation at Fukushima Daiichi and other nuclear power plants and research reactors, including information on off-site and on-site electrical power supplies, cooling systems and the condition of the reactor buildings. Nuclear fuel requires continued cooling even after a plant is shut down.

The IAEA is also seeking information on the status of radioactive sources in the country, such as medical and industrial equipment.

The World Meteorological Organization has informed the IAEA that prevailing winds are blowing eastwards, away from the Japanese coast.

All IAEA staff in Japan, both in the Tokyo office and in nuclear facilities, are confirmed to be safe.

Fukushima Nuclear Accident Update (11 March 2011, 08:30 UTC)

The IAEA's Incident and Emergency Centre received information from the International Seismic Safety Centre (ISSC) at around 08:15 CET this morning about the earthquake of magnitude 8.9 near the east coast of Honshu, Japan.

The Agency is liaising with the Japanese Ministry of Economy, Trade and Industry (METI) to confirm further details of the situation. Japanese authorities reported that the four nuclear power plants closest to the quake have been safely shut down.

The Agency has sent an offer of Good Offices to Japan, should the country request support.

Current media reports say a tsunami alert has been issued for 50 countries, reaching as far as Central America. The Agency is seeking further information on which countries and nuclear facilities may be affected.

Purpose-built emergency website

IAEA AlertLog example

Use of social media

facebook

Search

International Atomic Energy Agency (IAEA)'s Notes

International Atomic Energy Agency (IAEA)'s Drafts

Browse Notes

Friends' Notes

Pages' Notes

My Notes

My Drafts

Notes About Me

Jump to Friend or Page

Add tags

Subscribe

International Atomic Energy Agency (IAEA)'s Notes

Edit import settings

Japan Earthquake Update (13 March 2011 12:55 UTC)

Edit

by International Atomic Energy Agency (IAEA) on Sunday, March 13, 2011 at 4:11pm

Japanese authorities have informed the IAEA's Incident and Emergency Centre (IEC) that venting of the containment of reactor Unit 3 of the Fukushima Daiichi nuclear power plant started at 9:20AM local Japan time of 13 March through a controlled release of vapour. The operation is intended to lower pressure inside the reactor containment.

Subsequently, following the failure of the high pressure injection system and other attempts of cooling the plant, injection of water first and sea water afterwards started. The authorities have informed the IAEA that accumulation of hydrogen is possible.

Japanese authorities have also informed the IAEA that the first (i.e., lowest) state of emergency at the Onagawa nuclear power plant has been reported by Tohoku Electric Power Company. The authorities have informed the IAEA that the three reactor units at the Onagawa nuclear power plant are under control.

As defined in Article 10 of Japan's Act on Special Measures Concerning Nuclear Emergency Preparedness, the alert was declared as a consequence of radioactivity readings exceeding allowed levels in the area surrounding the plant. Japanese authorities are investigating the source of radiation.

The IAEA has offered its "Good Offices" to Japan to support the nation's response to the 11 March earthquake and tsunami. One IAEA capability intended to help member states during crises is the Response and Assistance Network (RANET). The network consists of nations that can offer specialized assistance after a radiation incident or emergency. Such assistance is coordinated by the IAEA within the framework of the Assistance Convention.

The IAEA continues to liaise with the Japanese authorities and is monitoring the situation as it evolves.

Appendix II
Staff Contact Lists

It is important to have up-to-date contact lists for staff members who are part of the emergency response roster for the PIO/Team so they can be contacted at any time, even after business hours, on weekends and holidays. The same information can be kept in different lists organized by name or by position. A specific individual can be looked up by name and if a media relations person is needed (for example), the position can be looked up first.

PIO/Team (by name)

Name	Office Extension	Home	Mobile/Pager	Email
Name 1	####	###-###-####	###-###-####	
Name 2	####	###-###-####	###-###-####	
Name 3	####	###-###-####	###-###-####	
Name 4	####	###-###-####	###-###-####	
(Others…)				

PIO/Team (by position)

Position	Name	Office Extension	Home	Mobile/Pager	Email
Lead PIO	Name 1	####	###-###-####	###-###-####	
	Name 2	####	###-###-####	###-###-####	
Spokesperson	Name 3	####	###-###-####	###-###-####	
	Name 4, etc.	####	###-###-####	###-###-####	
Media Relations					
Media monitors					
Internet Coordinator					
Hotline Representatives					
Liaison officers					
Computer support					
Support staff					

Appendix III
Internal Communications Log Form

This form should be part of the internal communication log or tracking system. It allows all communications to become part of an organized system for ease of access during the response and in the future during debriefing and lessons learned activities.

FROM: ____

DATE: ______________________

TO: ____

TIME: ______________________

MESSAGE:

____

____

____

____

____

____

____

____

RESPONSE REQUIRED? Yes ☐ No ☐

WHEN? Immediately ☐ ASAP ☐ When available ☐

RESPONSE:

____

____

____

____

____

COPIES TO: ☐ Lead PIO

☐ Spokesperson

☐ Media Relations

☐ Telephone Responders

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DEFINITIONS

(Definitions marked with an asterisk apply for the purposes of the present publication only.)

accident
Any unintended event, including operating errors, equipment failures or other mishaps, the consequences or potential consequences of which are not negligible from the point of view of protection or safety.

arrangements (for emergency response)
The integrated set of infrastructural elements necessary to provide the capability for performing a specified function or task required in response to a nuclear or radiological emergency. These elements may include authorities and responsibilities, organization, co-ordination, personnel, plans, procedures, facilities, equipment or training.

communication*
A *process of message exchange in a personal, cultural and social context*, during which it arouses *cognitive* activity, *emotional* states and *behaviors*. It must be understood that communication is not simply exchange of information but a complex mutual relationship between involved parties, though exchange of information, that is only cognitive aspect, is often emphasized.

communication channels*
Used to transmit information, either en mass or targeted to specific audiences the type of information should be appropriate to both the channel used and the intended target audience. Traditional communications channels include electronic media (radio and television) and print media (newspapers and magazines). Information can be provided in the form of press releases (where media determine if they will use the information), paid advertising (where print space or broadcast time is purchased) or public service announcements (where print space or broadcast time is donated by the media).
Other traditional communications channels include:

- warning sirens
- mobile loudspeakers
- toll free hot lines (to answer questions from callers)
- public information centres (where affected residents can get information and ask questions)
- presentations
- public meetings

contamination
Radioactive substances on surfaces, or within solids, liquids or gases (including the human body), where their presence is unintended or undesirable, or the process giving rise to their presence in such places.

dose assessment
Assessment of the dose(s) to an individual or group of people.

emergency
A non-routine situation or event that necessitates prompt action primarily to mitigate a hazard or adverse consequences for human health and safety, quality of life, property or the environment. This includes nuclear or radiological emergencies and conventional

emergencies such as fires, release of hazardous chemicals, storms or earthquakes. It includes situations for which prompt action is warranted to mitigate the effects of a perceived hazard.

emergency phase
The period of time from the detection of conditions warranting an emergency response until the completion of all the actions taken in anticipation of or in response to the radiological conditions expected in the first few months of the emergency. This phase typically ends when the situation is under control, the off-site radiological conditions have been characterized sufficiently well to identify where food restrictions and temporary relocation are required, and all required food restrictions and temporary relocations have been implemented.

emergency plan
A description of the objectives, policy and concept of operations for the response to an emergency and of the structure, authorities and responsibilities for a systematic, co-ordinated and effective response. The emergency plan serves as the basis for the development of other plans, procedures and checklists.

emergency procedures
A set of instructions describing in detail actions to be taken by response personnel in an emergency.

(emergency) response
The performance of actions to mitigate the consequences of an emergency on human health and safety, quality of life, property and the environment. It may also provide a basis for the resumption of normal social and economic activity.

emergency services
The local off-site response organizations that are generally available and that perform emergency response functions. These may include police, fire and rescue brigades, ambulance services, and control teams for hazardous materials.

emergency worker
A worker who may be exposed in excess of occupational dose limits while performing actions to mitigate the consequences of an emergency for human health and safety, quality of life, property and the environment.

exposure
The act or condition of being subject to irradiation. Exposure can be either external exposure (irradiation by sources outside the body) or internal exposure (due to a source within the body).

first responders
The first members of an emergency service to respond at the scene of an emergency.

incident
Any unintended event, including operating errors, equipment failures, initiating events, accident precursors, near misses or other mishaps, or unauthorized act, malicious or non-malicious, the consequences or potential consequences of which are not negligible from the point of view of protection or safety.

incident commander*
The person in charge of the emergency response.

initial phase
The period of time from the detection of conditions warranting the implementation of response actions that must be taken promptly in order to be effective until those actions have been completed. These actions included taking mitigatory actions by the operator and urgent protective actions on and off the site.

ionizing radiation*
A general term for radiation (unlike normal visible light) that can cause damage to the tissue when it passes through by the formation of ions in the tissue. The primary types of ionizing radiation are gamma, beta, X rays and neutrons.

longer term protective action
A protective action, which is not an urgent protective action. Such protective actions are likely to be prolonged over weeks, months or years. These include measures such as relocation, agricultural countermeasures and remedial actions.

mitigatory action
Immediate action by the operator or other party:
(1) To reduce the potential for conditions to develop that would result in exposure or a release of radioactive material requiring emergency actions on or off the site; or
(2) To mitigate source conditions that may result in exposure or a release of radioactive material requiring emergency actions on or off the site.

non-radiological consequences*
Effects on humans or the environment that are not deterministic or stochastic effects. These include effects on health or the quality of life resulting from psychological, social or economic consequences of the emergency or the response to the emergency.

notification
(1) A report submitted to a national or international authority providing details of an emergency or potential emergency, for example as required by the Convention on Early Notification
Convention of a Nuclear Accident;
(2) A set of actions taken upon detection of emergency conditions with the purpose of alerting all organizations with responsibility for taking emergency response actions in the event of such conditions.

nuclear or radiological emergency
An emergency in which there is, or is perceived to be a hazard due to:
(1) The energy resulting from a nuclear chain reaction or from the decay of the products of a chain reaction; or
(2) Radiation exposure.

off-site: Outside the site area.

on-site: Within the site area.

operational intervention level (OIL)
A calculated level, measured by instruments or determined by laboratory analysis, that corresponds to an intervention level or action level. OILs are typically expressed in terms of dose rates or of activity of radioactive material released, time integrated air concentrations, ground or surface concentrations, or activity concentrations of radionuclides in environmental, food or water samples. An OIL is a type of action level that is used immediately and directly (without further assessment) to determine the appropriate protective actions on the basis of an environmental measurement.

operator
Any organization or person applying for authorization or authorized and/or responsible for nuclear, radiation, radioactive waste or transport safety when undertaking activities or in relation to any nuclear facilities or sources of ionizing radiation. This includes, private individuals, governmental bodies, consignors or carriers, licensees, hospitals, and self-employed persons. This includes those who are either directly in control of a facility or an activity during use (such as radiographers or carriers) or, in the case of a source not under control (such as a lost or illicitly removed source or a re-entering satellite), those who were responsible for the source before control over it was lost.

protective action
An intervention intended to avoid or reduce doses to members of the public in emergencies or situations of chronic exposure.

public information centre*
The location for the coordination of all official information released to the media concerning the emergency.

public information officer*
Person who is primarily responsible for keeping the public and media informed and for coordinating with all sources of official information to ensure a consistent message is being provided to the public.

radiation emergency
A nuclear or radiological emergency.

radiation protection officer
A person technically competent in radiation protection matters relevant for a given type of practice who is designated by the registrant or licensee to oversee the application of the relevant requirements established in international safety standards.

radiological assessor
A person who in the event of a nuclear or radiological emergency assists the operator of a dangerous source by performing radiation surveys, performing dose assessments, controlling contamination, ensuring the radiation protection of emergency workers and formulating recommendations on protective actions. The radiological assessor would generally be the radiation protection officer.

response organization
An organization designated or otherwise recognized by a State as being responsible for managing or implementing any aspect of a response.

risk communication*
Any combination of actions, words, and other interactions that incorporate and respect the perceptions of the information recipients, intended to help people make more informed decisions about threats to their health and safety.

radiation source*
Anything that may cause radiation exposure — such as by emitting ionizing radiation or by releasing radioactive substances or material — and can be treated as a single entity for protection and safety purposes. It typically refers to an object or devise (e.g. X-ray machine). However it could also refer to a facility (e.g. nuclear power plant) or other source of ionizing radiation for example contamination.

special population groups
Those members of the public for whom special arrangements are necessary in order for effective protective actions to be taken. Examples include disabled persons, hospital patients and prisoners.

spokesperson*
Someone engaged to speak on behalf of others.

threat assessment
The process of analysing systematically the hazards associated with facilities, activities or sources within or beyond the borders of a State in order to identify:
(1) Those events and the associated areas for which protective actions and emergency countermeasures may be required within the State; and
(2) The actions that would be effective in mitigating the consequences of such events.

warning point
A contact point that is staffed or able to be alerted at all times for promptly responding to, or initiating a response to an incoming notification (meaning (1)), warning message, request for assistance or request for verification of a message, as appropriate, from the IAEA.

ABBREVIATIONS

EOC	Emergency Operations Centre
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
INES	International Nuclear and Radiological Event Scale
OIL	Operational Intervention Level
NGO	Non-governmental Organization
PIC	Public Information Centre
PIO	Public Information Officer
RDD	Radiological Dispersal Device
SI	International System of Units – Système International d’Unités
USIE	Unified System for Information Exchange in Incidents and Emergencies

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Consultancy Meetings

Vienna, Austria: 1-4 July 2008; 30 March–3 April 2009; 22-26 March 2010;
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Pilot Use

Training Course on Public Communications in Radiation Emergencies:
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National Training Course on Public Communications in a Nuclear or Radiological
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National Training Course for Pakistan on Public Communications in a
Nuclear or Radiological Emergency:
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Regional Training Course on Public Communications in a
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