

## Session 4. RP Culture in the Field of Medical Exposures

### Preparedness to Nuclear Emergencies Management at the level of Hospitals

Meeting WORKSHOP 13-15 February, 2019

*Marie Claire Cantone, UMIL, Italy*

- The case study is related to the Fukushima accident - an event of great attention, that enforced the implementation of an approach to the nuclear emergency response: the direct and primary involvement of hospitals
- The management of radiological and nuclear emergencies is a many facets question. Since many years, NPP are inactive → the risk of accidents may involve the presence of radioactive substances in industry and medicine and in activities of transport, detention, use of radioactive sources.
- Moreover, potential dangers arising from the management of radioactive waste, from the decommissioning, and possible accidents to NPP across borders.

- The Italian people returning from Japanese area, after the accident, independently on the area they were in Japan, decided to go directly to the hospitals, as considered the main center for public in emergency.
- Italian people from Japan turn to hospitals, as workers or public.
- Moreover, a number of people just worrying about environmental contamination, not in Japan but directly in Italy, took hospitals as center for any needs, from expressing their concern to simply ask information.
- Hospitals are seen as a place of great trust and characterized by high sensitivity towards the public.

- A note released by the Italian Ministry of Health regarding the first controls on Italians who returned home from Japan, has shown the **great advantage of the cooperation** between the regional administrations and the Ministry: a number of 23 hospital centers were activated in 10 regions



*Ministero della Salute*

## Comunicato stampa n. 59

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### **Incidente nucleare in Giappone, primi controlli su italiani al rientro nel nostro Paese. Nessun rischio per la salute**

A seguito dell'incidente alla centrale nucleare giapponese di Fukushima, verificatosi a causa del terremoto dell'11 marzo, sono stati identificati in stretta collaborazione tra Regioni e Ministero della Salute, i centri regionali per l'effettuazione delle visite e dei controlli per i cittadini italiani e stranieri che rientrano dal Giappone al fine di verificare eventuali contaminazioni radioattive.

Sono attualmente attivi 23 centri ospedalieri in dieci Regioni: Emilia Romagna, Friuli Venezia Giulia, Lazio, Liguria, Lombardia, Piemonte, Provincia autonoma di Bolzano, Toscana, Valle d'Aosta, Emilia Romagna e Sardegna. L'elenco dei centri, in costante aggiornamento, è consultabile nel portale internet del Ministero [www.salute.gov.it](http://www.salute.gov.it).

- A case of very large mediatic attention refers to the musicians of the *Florence Maggio Musicale*, who were in tournée in Japan just during the tsunami and the radiation risk and were.
- The group counted a large number of members, including choir, orchestra, technicians and employees, and **more than 200 person were controlled in the laboratories of the Careggi Hospital** (the main hospital in Florence).
- **Medical physicist and nuclear physicians** explained to people, authorities and journalists (since they were fully interested in giving info on this) that results of the urine analysis indicated I-131 were **not of great concern**.
- From that moment, an alarmism started in the public in general.

At the same time questions emerged at the journalism level, and public and experts were also involved in that, i.e.:

Is it correct to scare about some tourists or workers who were in Japan, such as the Maggio Musicale, and at the same time discuss less of the dead and missing Japanese persons in the Fukushima event ?

An answer was that minimizing is as absurd as dramatizing, and this was followed by a thought notes about:

Do we have to be contaminated to justify our fear?

In the communication to the public a clear critical issue emerged in those days on the level of radiation doses and their significance



RP Culture with and through journalist

- At national level, **before Fukushima**, the management of radiological emergencies was seldom an interest for medical physicists (unless very qualified) a part few experiences in large hospitals, in relation to very special radiological circumstances.
- After Fukushima, emerged the values of medical physicists in the management of nuclear emergencies, for the assessment of irradiation and **contamination of the involved subjects**, and also for an **adequate risk communication to the community**.
- The medical physicists of the different hospital centers, in this case, on the basis of the radiometric **instrumentation available in their structure**, proceed with a proper calibration, their analyses, their estimate of the results and their evaluation of the level of radiation exposure.

- Before Fukushima, CBRN emergencies were somehow perceived as a niche sector, for rare events → but it is the low frequency that involves, in practice, elements of criticality in the management.
- Given that hospitals are among the first to be used in case of health emergency, an effective hospital response becomes crucial in the management of CBRN emergencies
- In Tuscany, during the Fukushima initial period, the Careggi Hospital structure enhanced the project to establish a CBRN emergency hospital management program towards an optimization of the human, instrumental and structural resources present in the hospital. At the same time the process started also in various other Italian hospitals, in particular with great attention in Milan, Pisa and Rome.



- This case study **evidenced the importance of RP Culture in hospitals, encompassing not only the RP Culture in medicine, but that could include RP Culture in nuclear emergency, in case there is some need.**
- Medical Physicists are the professional health figures who have the necessary scientific and technological skills for the management of irradiated and/or contaminated subjects, for the radioprotection aspects of the personnel and for the determination of contamination levels and the relevant dosimetry quantities.
- In Italy their training, in addition to a master's degree in physics, include a post graduate specialization school for the achievement of a four-year diploma in medical physics, with apprenticeship at the accredited facilities of the National Health Service.

- In practice, because of the reduced frequency of occurrence of nuclear emergency, it is possible to configure various critical issues in hospital, such as the lack of familiarity of the health and rescue personnel in the management of such events, the need for their adequate information and training, the availability of suitable and ready to be used instruments for measurements.
- In planning health related activities, one point, which is also part of the **RP Culture**, is the **optimization of available resources** which, for the case study, entails necessarily a radiological triage path in order to establish a priority in the treatment of victims and in the implementation of the necessary measures for the protection of collective health on short, medium and long-term effects.

- This is true even for local hospitals: in fact, if on the one hand we are taught that the priority of transport and the destination of subjects towards the hospitals should be through the filter of the rescuers, experience teaches that, in emergency situations, **many people turn spontaneously at the hospital** or because they have escaped from the first aid network or, even if not directly involved/injured, because they are worried about the consequences on their health of a possible contamination.
- **RP Culture supported** the response of hospitals in that circumstances, in terms of proper behaviour and technical point of view (*i.e. radionuclides different from those used in hospital in radiopharmaceuticals and quite different level of radioactivity at the moment of measurements*) in cooperation with CBRN and Universities.

- Professionals from the hospitals were engaged in dosimetric evaluation, **communication of dose to the interested people**, and also to give information on the significance of that dose level, that are normally at different level than the medical exposure.
- This need to react in practice on the technical and communication aspects enhanced **RPCulture** :
  - on **how to approach people** coming to hospital for a measurement and evaluation of exposure and on communication,
  - on dedication more **awareness** and **ethics in the judgement**,
  - in relation to **mediatic attention**, in particular in the early post-emergency in Fukushima

- The attention in learning from events, incidents and near misses, as an important part of culture development, started with Fukushima.
- The attention of the Careggi hospital and Niguarda hospital in Lombardy to cases of emergency situations with cooperation with CBRN were already oriented in 2005, but not specifically addresses to nuclear emergency.
- It was recognised in 2005 the importance to maintain the active role of RPC to set up the general organizational structure procedures, workflow and communication of the final result and their significance.

DECRETO DIREZIONE GENERALE SANITA' N. 11514 DEL 25/07/2005  
Identificativo Atto n. 865

Oggetto: LINEE GUIDA REGIONALI PER LA GESTIONE OSPEDALIERA DI PERSONE ESPOSTE A IRRADIAZIONI E/O CONTAMINAZIONI ACUTE IN RELAZIONE AD EVENTUALI EMERGENZE RADIOLOGICHE

IL DIRETTORE GENERALE

**RICHIAMATO** il proprio decreto del 21 dicembre 2004, n. 23058 avente per oggetto "Linee guida regionali sulla previsione e gestione dei rischi conseguenti ad atti terroristici", con particolare riguardo al Capitolo "7. Azioni terroristiche con impiego di sostanze radioattive" in cui vengono fornite indicazioni e riferimenti per affrontare eventuali emergenze radiologiche e si individuano sei presidi ospedalieri lombardi in possesso di requisiti che consentano di assistere persone irradiate e/o contaminate a seguito di incidenti o atti deliberati che comportino dispersione di sostanze radioattive;

Regional Decree reporting the Guideline for the management, in hospital departments, of persons exposed and /or contaminated in the event of emergency

## *Development of tools, methods & processes to build, enhance and transmit RP culture*

- In 2013 an event with main **object the role hospital in CBRN emergency** towards a Regional guideline (The hospital in CBRN emergencies. Towards a regional guideline.)
- A number of local and national events were organized **to disseminate this view and encompassing a basis of science with ethical and social values.**



### Emergenze NBCR: la Toscana si dota di un piano operativo

🕒 Mercoledì 11 Dicembre 2013, 17:19

*Non sono frequenti ma non bisogna farsi trovare impreparati: la Regione Toscana sta studiando un piano di intervento operativo per la gestione ospedaliera delle emergenze NBCR (nucleari, biologiche, chimiche, radiologiche)*

<https://www.ilgiornaledellaprotezionecivile.it/istituzioni/emergenze-nbcr-la-toscana-1t-br-gt-si-dota-di-un-piano-operativo>



## *Development of tools, methods & processes to build, enhance and transmit RP culture*

Health Care Structures, mainly those of a university nature, in the organization of training courses in radioprotection, normally insert a specific attention to nuclear emergencies, together with parts such as radiation protection in nuclear medicine and the attention to the environment, as for example the Radiological Protection course at the Federico II University Hospital, Naples, 2015 organised by the Italian Association of Medical Radioprotection.



UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II  
DIPARTIMENTO SCIENZE BIOMEDICHE AVANZATE  
Associazione Italiana di Radioprotezione Medica  
Sezione Regionale Campania



AZIENDA OSPEDALIERA UNIVERSITARIA FEDERICO II  
PROVIDER REGIONALE ECM N.41  
Via Sergio Pansini 5-80131 Napoli

Corso di formazione in  
**RADIOPROTEZIONE**  
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Presidente: M. Salvatore  
Responsabili: R. Pennarola A.Cuocolo

Azienda Ospedaliera Universitaria Federico II –Via Pansini 5-Napoli. 80131  
Aula Radiologia –Edificio 10

[http://www.ecm.unina.it/programmi%202015/Corso%20in%20RADIOPROTEZIONE%20\(la%20nuova%20prevenzione%20radiologica%20e%20tutela%20della%20salute\).pdf](http://www.ecm.unina.it/programmi%202015/Corso%20in%20RADIOPROTEZIONE%20(la%20nuova%20prevenzione%20radiologica%20e%20tutela%20della%20salute).pdf)

**... and more frequently events were dedicated to RP in emergency with attention to the contribution by the Health Care Structures**

# Development of tools, methods & processes to build, enhance and transmit RP culture

The Course is addressed to professionals and technicians involved in the management of radiological/nuclear emergencies and to all those who have an interest in these topics, and it is aimed to deal with the adequate information of operators.

Professional and technicians related to health care centers are indicated in [the accreditation for this course](#), for example, *Physicians in Nuclear Medicine, Radiology, Neuroradiology, Emergency Medicine, Internal Medicine, Occupational Medicine, Radiotherapy* and other professionals as *Medical Physicist, Head of Prevention and Protection Service, Medical Radiology Technician, Professional Nurse*

## December 2018



AULA SCOZIA  
Azienda Ospedaliero Universitaria  
"San Giovanni di Dio e Ruggi D'Aragona – Scuola Medica Salernitana"

**EMERGENZE RADIOLOGICHE E NUCLEARI  
IN AMBITO TERRITORIALE ED OSPEDALIERO**  
Salerno 14 dicembre 2018



Con il patrocinio di :



Evento in corso di accreditamento per : Medicina Nucleare, Radiodiagnostica, Neuroradiologia, Medicina e Chirurgia d'urgenza, Anestesia e Rianimazione, Medicina Interna, Medicina del Lavoro, Medico di Direzione Sanitaria, Medico Radioterapista, Fisioco Medico, RSP ( Responsabile Servizio Prevenzione e Protezione, ASPP (Addetto Servizio Prevenzione e Protezione, TSRM ( Tecnico Sanitario di Radiologia Medico) e IP (Infermiere Professionale)



- In this case, there was interaction among main stakeholders:
  - -the members of the **public**
  - -workers in particular the **hospital staff** taking care of possible contaminated people and CBRN;
  - -**who take decision on the role of the hospitals** in the specific emergency;
  - -the **experts of national institutions** with expertise in the field (e.g. professionals from Health Physics Lab of National agencies, like ENEA, working in RP);
  - -the official **communication and indications by Ministry Offices**, to the public
  - - more in general **the journalist**

- The target stakeholders can interact with the main professionals (e.g. the members of the public who go to the hospital if they worry about a possible contamination; they are taken into consideration, after a sort of interview related to their fear, before the triage. Consider also the large exchange of info on the procedure among the different professionals, including journalist)
- The capability to be involved in RP decision making processes or to implement RP actions, is given to the hospital structures and to a strict cooperation with CBRN, where relevant. Moreover, the health care structures are in direct contact with local or regional institutions, since it is recognised very important the planning of response to emergency also at local level.

- The attention to the RP Culture through the dissemination of essential points of interest regarding emergency situations has led to the involvement of a large number of professional figures of health environment, including among them some professionals initially not directly related to the RP, and mostly has led to a general greater awareness on this theme of radiological emergencies.
- We can notice that, over time and more often, events, congresses and courses that refer to the use of radiation in medicine tend to include also presentations and references to the *role of hospitals in nuclear emergencies*, and similarly at the same time, events, congresses and courses that refer to nuclear emergency and terrorist attacks, always introduce more attention to the *role of the Health Care Institutions for their contribution in the response*.

- **RP Culture**, through the awareness of the main point of protection, contributes for a more comprehensive communication among workers in the hospitals and for more an adequate application of the procedure foreseen in case of emergency.
- **RP Culture** contributes for an improvement in the communication with the members of the public, patients, and other professionals of the same or other structures.
- **RP Culture** can contribute in helping the information and communication with journalists, thus to improve the transmission and articulation of the data evaluated and their meaning in the view of radiological protection.
- **RP Culture**, in the frame of different views of the parties, even opposite points of views about what they consider the best for the people involved, would give a support for a common basis of discussion.

RP Culture, as a combination of knowledge and awareness of the situation, is of help for a better organisational and individual behaviours, with a sense of the social dimensions of the communication.

RP Culture is a basis for any attention/involvement in emergency.

The need to better introduce RP Culture and continue to maintain it active and present.

RP is already present in hospitals, as we know, before any nuclear accident, but it is important a RPC that face nuclear emergency and not only a RPC in medicine.

In the situation of emergency, regardless of the severity level, it clearly emerges how the interaction, as a whole system, of professionals with different field of expertise, but same interest in doing the best in emergency, (e.g. as in CBRN approach) **contributes to create synergies.**

*“The experience needed to **build a holistic approach** is being drawn from various sectors of activity, many of which have been addressing their own sectorial risk assessment and management for some time”.*

T. Lazo, B. Kauher, A global approach to risk management: Lesson from the nuclear industry . Facts and opinions, NEA News 2003 –No.21.1).

**This aspect is also part of the RPC**