EMPOWERING MEDICAL PHYSICISTS IN RADIATION EMERGENCIES: BRIDGING EXPERTISE WITH FRONTLINE RESPONSE

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INTRODUCTION

Nuclear and Radiological Emergencies are exceptional events characterized by specific critical issues in their management in addition to those naturally connected to all types of emergencies.

An effective response requires intervention teams with training and dedicated instrumentation. But the *low probability of occurrence* and the *specificity of the resources needed* to deal with them implies a considerable effort to respond in a right way .

The emergency and health services must address critical decisions that cover many practical aspects, ranging from managing medical emergency response to long-term follow-up of those exposed. The risk of being overwhelmed is strong, special equipment and abilities are required

Optimizing existing resources distributed over the territory is a necessary step to build a sustainable response method.

This study aims to explore organizational challenges and enhance the involvement of Medical Physicists in hospital emergency response, as well as their integration into on-site emergency medical teams.

WHY ?

Accidents can happen anywhere because radiation sources are ubiquitous

❖ widespread uses within **medicine**, **industry** and **research**.

❖ during **transportation**

❖ **incorrect waste disposal**

❖ **climate change** has a role in increasing the vulnerability to radiation risk.

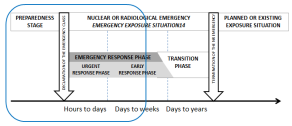
❖ the ongoing challenges in regions of international instability have reignited **the issue of nuclear weapon**s back

❖ malevolent scenarios, such as the use of **Radiological Dispersion Devices** known as dirty bombs, are becoming more plausible

❖ the **illicit traffic** of nuclear and radioactive materials is an additional source of health risk, characterized by unpredictable territorial location

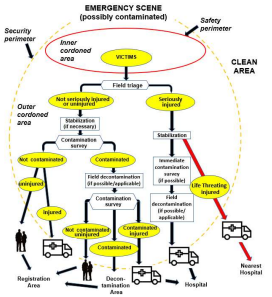
PREPAREDNESS

The Medical Physicist as a health professional may be involved **from the emergency preparedness to early response phases**

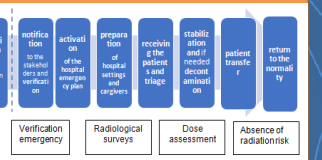


They can provide for emergency preparedness and response:
- as trainers, they can contribute to developing a culture of appropriate. If adequately prepared, they may also be the trainers of first responders at the accident site;
- as radiation experts, they can act for risk verification, decontamination procedures, measurement of environmental and personal doses, and management of radioactive waste, always in connection with the requirements of RPO;
- as stakeholders, the MPs should help local hospital management to develop action plans and carry out drill activities
- as dosimetry experts, they can prepare early dose assessment.

RESPONSE ON SCENE



RESPONSE IN HOSPITAL



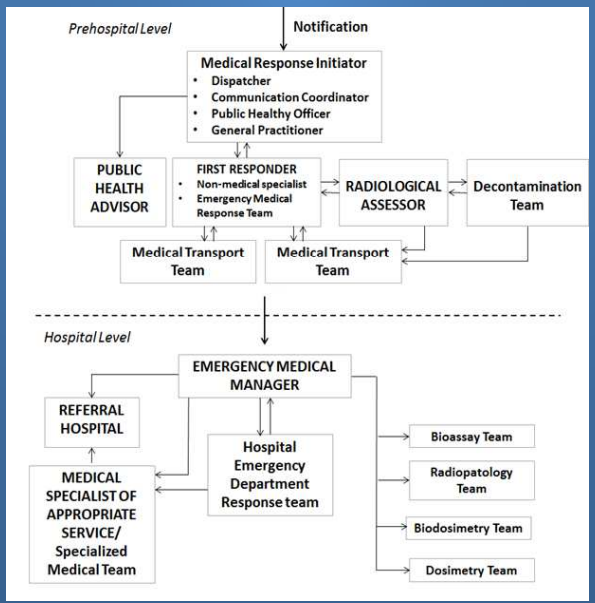
CONCLUSIONS

Medical Physicists are committed to ensuring the safety of patients during diagnostic and therapeutic procedures with ionizing radiation in health settings, but their activity can extend beyond this to the whole community if necessary. Therefore, being prepared to face an NRE should be considered a part of a healthcare professional's profile.

- **PREHOSPITAL LEVEL** The integration within emergency medical teams on the scene is a potential that must be understood, explored and deployed. The institutional decision-makers will and the professionals' willingness to take this new role are necessary steps, specific education and training aimed to the integration and recognition by other forces on the ground are of paramount importance.

-**HOSPITAL LEVEL** Their presence within the hospitals can guarantee valuable help to the Emergency Department staff during an external radiation emergency. This is the reason why the IAEA promotes Medical Physicists' inclusion within emergency teams. However, there is still no recognition of the need for specific education in postgraduate curricula.

Utilizing the existing skills within the community is a key factor in increasing the number of experts who can intervene effectively. It is a way of strengthening the national capacity to address radiation emergencies in a sustainable way.



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