A specific training package for medical physicists in support to nuclear and radiological emergency

A. Meghzifene and T. Berris

Dosimetry and Medical Radiation Physics Section, International Atomic Energy Agency

IAEA 60 Years

Atoms for Peace and Development

Conclusion

Medical physicists have a role in support of response to nuclear or radiological emergency (NRE) situations. The duties of dosimetry expert and trainer are commensurate with the roles and responsibilities of clinically qualified medical physicists as described in IAEA Human Health Series No. 25.

Medical Physicists could also support response to NRE events as advisors on planning and response at the hospital level.

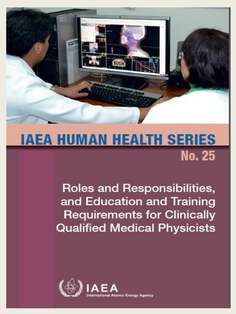

Fig.1. IAEA Human Health Series No. 25. (2013).
Endorsed by AAPM and IOMP

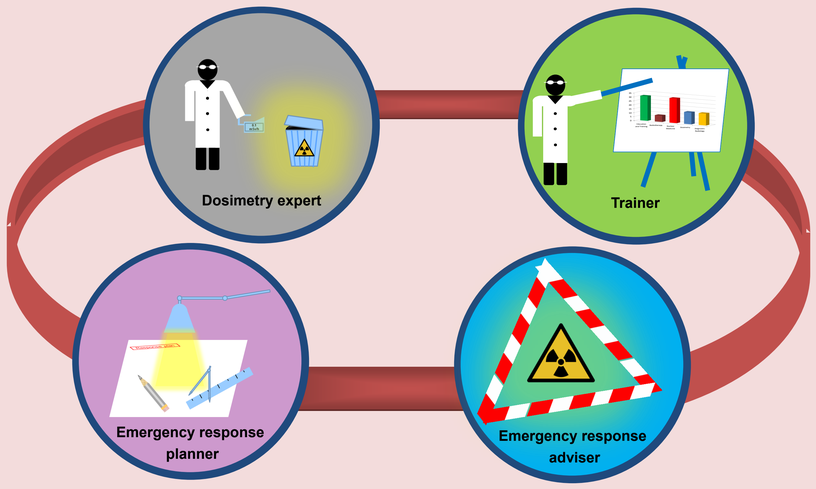

Fig.2. Roles of medical physicists in nuclear or radiological emergency (NRE).

Development of a Specific Training Curriculum[a]

A specific training curriculum was developed through consultation with International experts. Various professional and international organizations were involved in the development and/or endorsed the training programme, including IAEA, National Institute of Radiological Science (NIRS), Fukushima Medical University (FMU), WHO, IOMP, IRPA and the Japan Society of Medical Physics (JSMP).

Fig.3. Organizations that participated to the consultations for the development of the curriculum.

Aims of the Specific Training Curriculum

The curriculum aims to provide clinical medical physicists with additional skills and training regarding support of response to NRE events, taking into account the fact that such information may not be included in the formal education and training of clinical medical physicists.

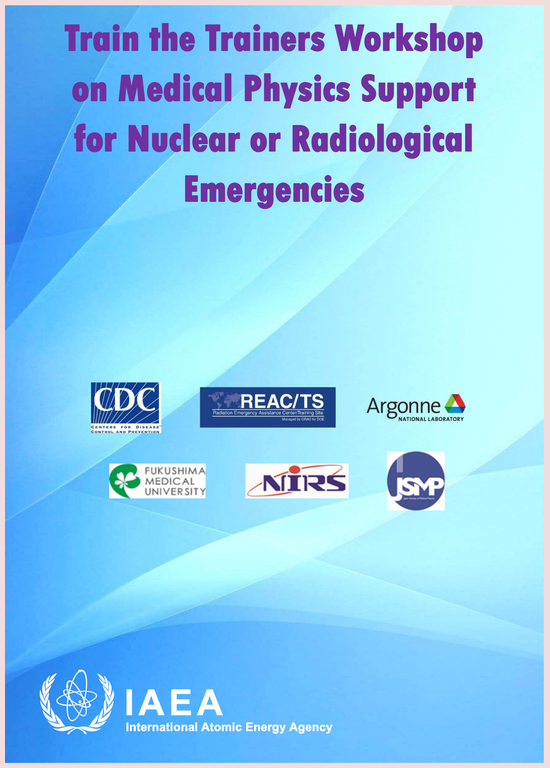

Fig.4. The specific training curriculum handbook.

Contents of the Specific Training Curriculum

The current curriculum includes the following modules:

1. Introduction
2. Nuclear and Radiological Emergencies
3. Radiation Measurements and Instrumentation
4. Dose Assessment and Dose Reconstruction
5. Monitoring and Decontamination of People Waste Management – Scene and Reception Centre
6. Monitoring and Decontamination of People, Waste Management – Hospital
7. Biological Effects of Radiation – Cell and Tissue Effects, stochastic effects
8. Protection Strategies for the Public
9. Protection Strategies for Workers
10. Medical Management
11. Psychosocial Effects and Impacts on Mental Health
12. Effective Risk Communication
13. Education and Training in NRE

The curriculum as well as other relevant information can be found at:

https://nucleus.iaea.org/HHW/MedicalPhysics/TrainingEvents/FukushimaJune2015/index.html

Train the trainers Workshops

The international workshops aim to:

- provide participants with the skills and training required so that they may act as trainers in their home countries,
- enable networking among experts from different countries in order to create an international network of medical physicists in support of NRE events, and
- raise awareness about the potential roles of medical physicists in support of NRE response.

1st Train the Trainers Workshop on Medical Physics Support for Nuclear or Radiological Emergencies, 22 - 26 June 2015, Fukushima, Japan[a]

- 24 local and international participants.
- Hosted by FMU and supported by NIRS.

2nd Train the Trainers Workshop on Medical Physics Support for Nuclear or Radiological Emergencies, 23 - 27 May 2016, Atlanta, USA[b]

- 19 local and international participants.
- Hosted by the Centers for Disease Control and Prevention (CDC) and supported by Argonne National Laboratory (ANL).

OPEN-LMS

IAEA Learning Management System
powered by CLP4NET

E-learning course

The educational material created for the training workshops is integrated into an e-learning course hosted on the e-learning platform maintained by the IAEA.

The material and the platform for delivery of the training are provided as a service/resource from the IAEA for any interested user worldwide. It could be used for the organization and conduct of training of medical physicists in support of NRE.

The course is available after signing up for the IAEA learning managements system (free of charge) and may be found at:

http://elearning.iaea.org/m2/course/view.php?id=348

Future work

- The specific training curriculum will be published as an IAEA publication.
- A quick reference pocketbook for medical physicists supporting response to NRE events will be created and published.
- A kit for medical physicists supporting response to NRE events will be suggested.

Acknowledgements

a. This work was supported by extra-budgetary funding from the Japanese Government under the NA/21 Project.

b. This workshop was supported by the International Programmes at Argonne National Laboratories.

References

1. INTERNATIONAL ATOMIC ENERGY AGENCY, Roles and Responsibilities, and Education and Training, Requirements for Clinically Qualified Medical Physicists, IAEA Human Health Series No 25, IAEA, Vienna, 2013
2. Human Health Campus Website, Train the trainers Workshop on Medical Physics Support for Nuclear or Radiological Emergencies, https://nucleus.iaea.org/HHW/MedicalPhysics/TrainingEvents/FukushimaJune2015/index.html