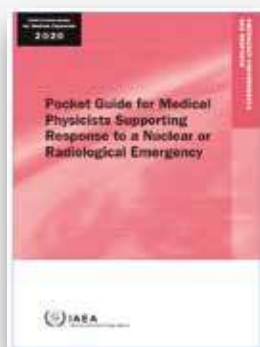


## ARTICLE

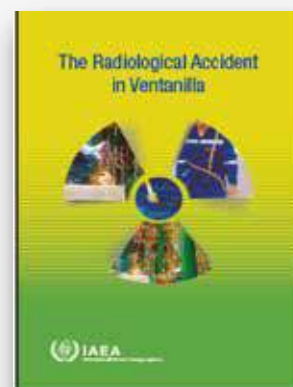
### IAEA PARTICIPATION IN MEDICAL RESPONSE ACTIVITIES IN THE LATIN AMERICAN REGION IN THE COVID-19 PERIOD

FUKAHORI, Mai & GRANADA FERRERO, Maria Josefa. IEC, IAEA.

Due to the significant radiological accidents that have occurred in the Latin American Region, important medical response capabilities have been developed for nuclear and radiological emergencies. These capacities had a great boost as a result of the Goiania accident in Brazil and have been reinforced throughout these years.



The IAEA recognizes the importance of an adequate medical response. This response is essential for the protection and treatment of those who may be irradiated or contaminated in a radiological or nuclear accident. Thus, the management of the medical response in a nuclear or radiological emergency is described in requirement 12 of **GSR Part 7**<sup>1</sup>, where it is established that the government must ensure that there are arrangements for the provision of medical examinations and triage, as well as treatment and longer-term medical actions for those who could be affected in a nuclear or radiological emergency.



In order to develop these requirements there are many other **EPR** documents related to the **EPR**<sup>2</sup> medical field, but the **IAEA** has not only developed tools and publications, it has also supported the implementation of these standards and recommendations in the Latin American region through multiple supported activities. regional and national technical cooperation programs.

Notable results have been the development of the Latin American Network of Dosimetry Laboratories (LBDnet), which has become one of the most important networks in the world. **LBDnet** collaborates not only with the Region but with the rest of the **IAEA** member states through **RANET**. This network of laboratories continues to be a focal point of the medical response and within its framework, training activities and information exchange and calibration of methods within emergency dosimetry are carried out. Work has also been done on the capacities of the reference hospitals and on the training of their personnel. Medical physicists, especially clinical medical physicists working in hospitals, have in-depth knowledge of radiation dosimetry, dose reconstruction, and daily dose measurement procedures.



Founding Members Photo 2007

1 IAEA Safety Standards. Preparation and Response for Nuclear and Radiological Emergencies. General Safety Requirements No. GSR part 7.

2 EPR-Medical, EPR- Internal Contamination, EPR- Medical Physicists, EPR-Pocket Guide for Medical Physicists and numerous IAEA publications: Safety Reports Series No. 101 Medical Managements of Accidents Injuries, El Accidente Radiológico en Ventanilla, El Accidente Radiológico en Chilica etc..

Therefore, they constitute a unique group of professionals who are involved in medical teams and with adequate training can provide relevant support for emergency preparedness and response activities. This is a task that needs to strengthen the number of medical physicists who support the response to nuclear or radiological emergencies.

The **COVID** situation caused notable changes that forced the postponement and in some cases cancellation of training activities, expert advisory missions, etc. However, since the start of the pandemic, the **IAEA** has made a significant effort to convert face-to-face activities into virtual ones. Some as much as possible. This is being done to date, with the expectation that this situation will extend at least throughout the year 2021.

Another strategic line that has been followed at the **IAEA** has been to strengthen training and education activities in the Spanish language. This reinforcement was necessary given that there was and is a significant risk of disconnection with the Member States, not only due to the lack of face-to-face events, but also due to the language used for these activities. In summary, in the field of medical response, it is worth highlighting the virtual actions both in the field of education and training and in the support of experts. In the field of education and training, a basic e-learning module on medical response into Spanish has been translated and implemented; Within the webinars, two of them focused on aspects of medical response have been given and training materials have been translated for various virtual and face-to-face courses that will take place in the coming months. In the field of national projects, several virtual expert missions have been carried out that must continue in person as soon as conditions allow. These missions have focused on identifying the needs of both personnel, equipment and resources for the development of Biological Dosimetry Laboratories and reference hospitals in the countries. Intercomparison campaigns and coordination meetings have also been carried out both at the regional and national levels with various countries.

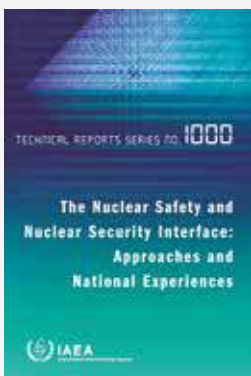
Throughout this period the effort of all parties has been great and complex; However, this effort provides a global vision of the problems of the Region and the identification of some specific problems that probably without this situation would have been more difficult to visualize. A notable finding is the identification of great training needs and deficiencies in treatment centers for irradiated or contaminated patients. But also access to seminars or online activities, which at this time is the main means of communication, has identified stakeholders of great importance in this matter, such as the first intervening parties, including those from the field of medical health, and fundamentally the coordinating role of the Region's networks.

From this point of view, **REPROLAM** has been seen, like the **FORUM**, as tools that have played a fundamental role in the coordination and dissemination of information and that maintain collaboration and cooperation with the **IAEA** and the countries of the Region. The participation of the **SEPR**, which has recently signed an agreement with the **IAEA**, is also seen as a network that can be integrated into activities.

For the next period, we have designed a set of activities that follow the same strategy as the rest of the IAEA in terms of the implementation format, that is, to hold virtual events at least during this year 2021 and to hold face-to-face events starting in 2022, opting for a hybrid implementation strategy (carry out an initial activity in virtual format followed by a face-to-face activity when the situation and schedule allow). With this format, training courses are proposed, both in basic medical response and biological dosimetry and various expert missions to different countries. Additionally, there are scheduled webinars in Spanish that within this theme will give continuity to those initiated this year and 2020.

For the year 2022, when it means that face-to-face activities will be able to start, other face-to-face meetings, dosimetry techniques intercomparison workshops and several face-to-face courses are scheduled, of which the following stand out: some related to new publications or of special interest to the region, namely: Train the trainers of medical physicists who support the response to nuclear or radiological emergencies, Advanced training course in medical preparedness and response to radiological emergencies and the first responders.

## EVENTS AND PUBLICATIONS



### **The Nuclear Safety and Nuclear Security Interface: Approaches and National Experiences**

This publication was developed from the exchange of information, experiences and practices by participating Member States at the IAEA Technical Meeting on the Safety and Security Interface — Approaches and National Experiences, held in Vienna in 2018. It aims to provide a better understanding of the important elements of the interface between nuclear safety and nuclear security for facilities and activities and to highlight the challenges, opportunities and good practices for its effective management when planning and implementing different programmes and activities.

Document available at: [LINK](#)

## REPROLAM VIRTUAL COURSE\_SCHOOL STARTS

### VIRTUAL COURSE OF TRAINING IN THE APPLICATION OF DIFFERENT CYTOGENETIC TESTS IN SCENARIOS OF OCCUPATIONAL OVEREXPOSURE

May 20 and 21, 2021\_11: 00 a 13: 00Hs\_Argentina



The objective of this course is to provide participants with the theoretical concepts of the different cytogenetic assays (biodosimeters) and biomarkers and their applicability for dosimetric reconstruction in cases of medical and industrial occupational overexposure.

#### TOPICS

**Thursday 20/05 from 11.00 to 13.30** we will address the theoretical concepts:

- Introductory concepts of radiobiology
- Cytogenetic assays (biodosimeters)
- Other biomarkers of overexposure

**Friday 05/21 from 11:00 a.m. to 1:30 p.m.** we will focus on the practical part and application of the theoretical concepts exposed on 05/20:

- Case study: Overexposure to ionizing radiation in the medical and industrial field
- Contribution of biological dosimetry to the evaluation of the risk projection of radiation induced cancer. Probability of causation

The course is aimed at members of the **REPROLAM** working groups in the areas of Biological Dosimetry and End Users. The registration period is already closed with 46 registered students.

#### Teachers:

- Marina Di Giorgio*
- Analía Radl*
- Julieta Rearte*

Registered members will receive the link to access the classes in due course.



## **VIRTUAL National Workshop on Holistic Approach to NORM management**

May 3 - 7, 2021

The National Nuclear Energy Commission is pleased to invite the national working event on Holistic Approach to NORM Management, which it organizes with the International Nuclear Energy Agency and which will take place from May 3-7.

The event aims to bring together the different actors in Brazil related to radioactive materials or natural occurrences (better known by the acronym in English NORM-of naturally radioactive materials). The objective is to establish a common understanding on how to deal with the problems that give rise to this material effectively, from the point of view of the principles of radiation safety, costs and sustainability.

This workshop is aimed at professionals from different careers, including regulators, private companies, radiation protection supervisors, research institutions and universities involved in the mineral, oil and gas sector and the processing of materials that contain natural radionuclides.

To register you must send email with name and organization to [H.Monken-Fernandes@iaea.org](mailto:H.Monken-Fernandes@iaea.org)

## **RADIOLOGICAL PROTECTION IN DENTAL RADIOLOGY**

Radiation Protection in Dental Radiology Online Course in English provides radiation protection education for dentists and other dental professionals. It contains nine modules in which the participant plays the role of a dental professional at The Family Dental Center.

The course aims to help participants to:

- Improve your understanding of radiation protection in the context of dentistry;
- Know how X-rays pose a potential risk to patients;
- Understand how dental X-ray equipment works and how it influences the patient's dose;
- Develop knowledge of the appropriate use of dental imaging in different clinical contexts;
- Learn to apply the optimization principle and recognize the value of the advice of medical physicists;
- Become familiar with common mistakes that lead to repeat X-ray examinations, reject analysis programs;
- Learn the importance of quality assurance programs;
- Learn how to make sure that you and your staff avoid the risks of X-rays.

To access the online course, go to: [http://ns-files.iaea.org/training/rpop/Dental\\_Radiology\\_sp/Video\\_Radiation\\_Protection\\_in\\_Dental\\_Radiology\\_Sp/story.html](http://ns-files.iaea.org/training/rpop/Dental_Radiology_sp/Video_Radiation_Protection_in_Dental_Radiology_Sp/story.html)

## WEBINAR

### **RADIATION TECHNOLOGY TO SUPPORT THE FIGHT AGAINST COVID-19**

May 18 - 2:00 pm (Brasilia)

The event, organized by the DEN / UFPE Museum of Nuclear Sciences, in celebration of National Museum Day, will discuss the contribution of radiation technology in supporting the fight against COVID-19.

The following topics will be presented:

- a) Nuclear techniques used for the sterilization of PPE for respiratory protection and other disposable medical devices,
- b) Technique of inactivation of the virus by ionizing radiation: for the production of preventive vaccines, production of antibodies for therapies of those who are already with Covid-19 (serotherapy), studies of the metabolic pathways of the virus; biological activity of plasma from contaminated individuals, etc.
- c) Use of the CT scan as a gold standard for the diagnosis of COVID-19.

Through this event, it is easy and educational to disseminate to the population the importance of ionizing radiation technology in supporting the fight against COVID-19.

Exhibitors:



**Pablo Vasquez**  
IPEN-CNEN / SP  
Head of R&D and  
Innovation



**Monica Mather** -  
IPEN-CNEN / SP  
It operates in the area of  
Morphology,  
with an emphasis on Cytology  
and  
Cell Biology




**Milena Oliveira Almeida**  
Radiologist at Hospital Da  
Restauração - Recife



**Patricia Wieland**  
Former Director of World  
Nuclear  
University in London

The event will be broadcast at the following link: <https://www.youtube.com/watch?v=XO-hvBQFuOY>



## EURADOS INTERCOMPARISON 2021 FOR PASSIVE AREA DOSEMETERS

Registration from May 1 to May 30, 2021

**EURADOS** Working Group 3 SG 2 offers the possibility of participating in the 2021 intercomparison for passive area dosimeters using the EURADOS intercomparison online platform. The 2021 area intercomparison is intended for  $H^*(10)$  environmental and workplace dosimeters with the possibility of choosing the measurement condition: 3-months inside, 3-months outside or 6-months outside. Extra irradiations with photon radiation will be carried out in the accredited irradiation laboratory with low and very low doses, certainly below 0.5 mSv

### Registration:

<https://www.eurados-intercomparison.org/ic2021area/>

### Participation Fee:

The participation fee is 1000 Euro for one dosimetry system and 800 Euro for any additional system. EURADOS sponsors will pay 900 Euro for one system and 800 Euro for any additional system.

### Intercomparison coordinator & administrator:

Christian Hranitzky & Christian Gärtner (Seibersdorf Labor GmbH, Austria)

Contact: [ic2021area@eurados-intercomparison.org](mailto:ic2021area@eurados-intercomparison.org)

### Intercomparison procedure:

Participants complete the application form which can be accessed after registration on the online platform. On acceptance of the application, the participants will receive an invoice from EURADOS and instructions. Before the given deadline, 12 dosimeters per system must be sent to the irradiation laboratory:

**Karlsruher Institut für Technologie (KIT)**  
**Building 123**  
**c/o Christian Naber**  
**Hermann-von-Helmholtz-Platz 1**  
**76344 Eggenstein-Leopoldshafen**  
**Germany**

After the 3-months and 6-months measurement periods, the irradiation laboratory will return the dosimeters to the participants for readout. Within one month, the participants submit their 12 dosimeter results in terms of ambient dose equivalent. After confirmation of the results, EURADOS will finally provide the response results in a "Certificate of Participation".

### Time Schedule:

01 May 2021 Start of Registration

31 May 2021 End of Registration

31 May 2021 Deadline for sending signed application forms

15 July 2021 Deadline for dosimeter arrival at KIT



## FEATURED EVENT

### **7th Joint Congress 23SEFM | SEPR 18: "Radiation and humanity: Much more than technology" ONLINE 2021\_tariff event May 31 - June 4, 2021**

We present the **7th Joint Congress of the Spanish Society of Medical Physics and the Spanish Society for Radiological Protection** that will take place online from May 31 to June 4, 2021.

This national and international congress has a significant participation of experts, professionals, researchers, professors and authorities related to Medical Physics and ionizing radiation in medicine, industry, science and the academic world. Entities such as the International Atomic Energy Agency (IAEA), the World Health Organization (WHO) and the Pan American Health Organization (PAHO) participate in the Congress.

Under this modality, it has been thought that all Latin American professionals may find it very interesting to participate in this edition, due to the convenience of being able to view the content in a wide space of time, to be able to network with professionals from Spain and others. countries, as well as with commercial exhibitors. The very affordable fees are aimed at reaching as many professionals as possible.

In addition, it is also intended to encourage the participation of professionals from around the world and for this reason a special free access to all plenary sessions has been enabled in their original language and live during the days of the Congress (from May 31 to June 4 ). In addition, these sessions will remain accessible for later viewing in English (translated or subtitled) on the Congress platform from June 7 to July 5.

You can consult the **PRESENTATION DOSSIER** here: [https://congresosefmsepr.es/wp-content/uploads/2106\\_-DOSSIER\\_PRESENTACION\\_7-CONGRES-CONJUNTO-SSEFM-SEPR-ONLINE-2021-version-web.pdf](https://congresosefmsepr.es/wp-content/uploads/2106_-DOSSIER_PRESENTACION_7-CONGRES-CONJUNTO-SSEFM-SEPR-ONLINE-2021-version-web.pdf)

#### **Pre-congress, Update and Pre-symposium courses for technicians:**

The Courses, Pre-congress, Update and Pre-symposium of technicians, will be available for viewing on the platform from May 17. Your discussion sessions will be:

***Pre-congress: May 28 in the morning***

***Update: June 1, 2 and 3 at 1 hour***

***Technical pre-symposium: May 27 in the afternoon***

Enrollment in these Pre-congress, Update and Pre-symposium courses for technicians implies that you must have paid one of the fees for the Congress / Symposium. The course fee cannot be selected individually, nor is it compatible with the discounted fee and the Plenary Sessions fee.



## PRE-CONGRESS COURSES

- Artificial intelligence / machine learning
- Reconstruction and quantification in Nuclear Medicine
- Radiobiology
- Internal dosimetry

All 4 courses for only € 25 (along with a Congress fee)

[See schedules](#)

## UPDATE COURSES

- What is the quality of a radiotherapy treatment plan? Dose distribution, robustness and complexity
  - Advanced MRI for biological image-guided adaptive radiotherapy
  - External and internal contamination in the sanitary environment
  - SGRT
  - Development of new imaging and radiation detection systems
  - Options for NORM Waste management through conventional methods
  - Exposure to radon gas in homes and jobs
- All 7 courses for only € 10 (along with a Congress fee)

[See schedules](#)

## TECHNICIANS PRE-SYMPOSIUM COURSES

- Planning methods for advanced techniques
- Quality control of RX equipment: Basis for conducting tests What do we observe in each test?

The 2 courses for only € 25 (along with a Technician Symposium fee)

[See schedules](#)

For more information about the event, go to: <https://congresosefmsepr.es/>