



# Quality improvement tools in radiation medicine – the experience of Colombia and Latin America

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## INTRODUCTION

### 1. IMPORTANCE OF QUALITY ASSURANCE IN RADIATION MEDICINE



**Quality assurance** consists of structured procedures and actions aimed at maintaining a high level of quality diagnosis or treatment of patients.

- ❖ *Diagnostic imaging*
- ❖ *Radiation treatment*
- ❖ *Education and training*
- ❖ *Research and Development*

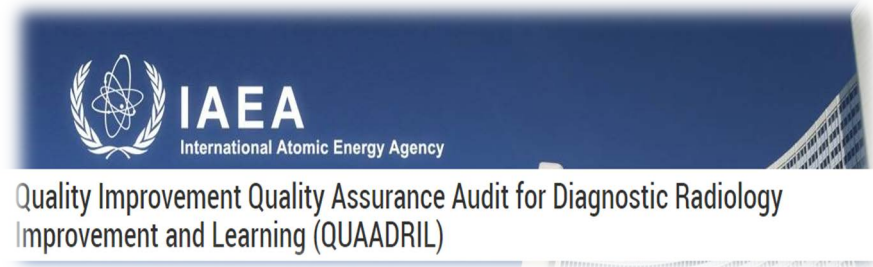
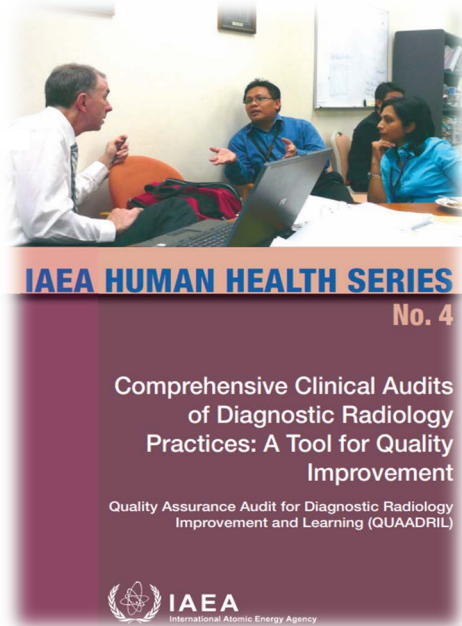


The constant growth of medical technology requires tools (international and national guides, equipment, etc) that allow to guarantee excellent diagnosis and treatment with ionizing radiation.





## 2a. Tools for Quality Improvement in Radiology

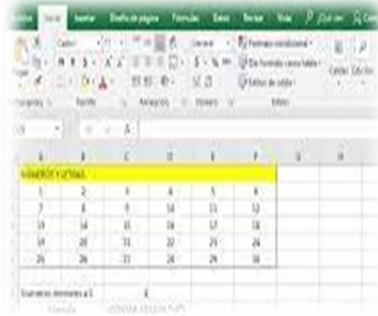


The importance of accurate radiological diagnosis and the possibility of increasing doses in view of technical advances in equipment and complexity of procedures, drives the need for **QA in diagnostic radiology**.

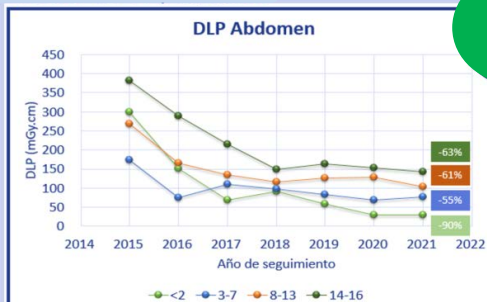
Comprehensive clinical audits represent an important component of any QA programme.



## Colombian Experience



### DOSE REDUCTION IN PEDIATRIC CT



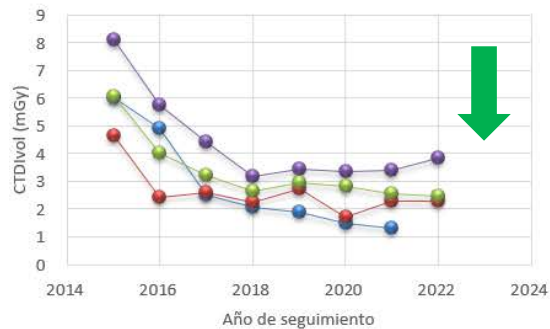
90%

### Challenge

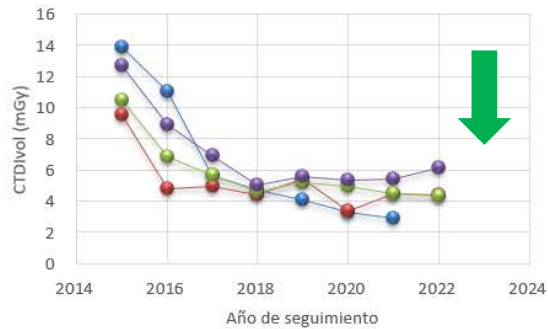




## CTDI Abdomen



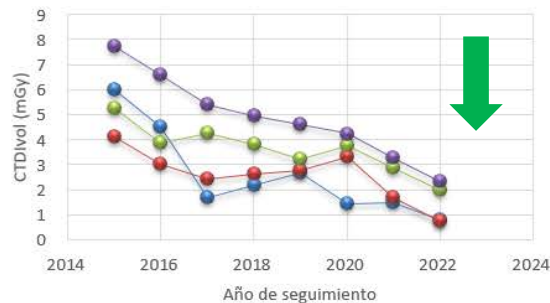
## SSDE Abdomen



## DLP Abdomen



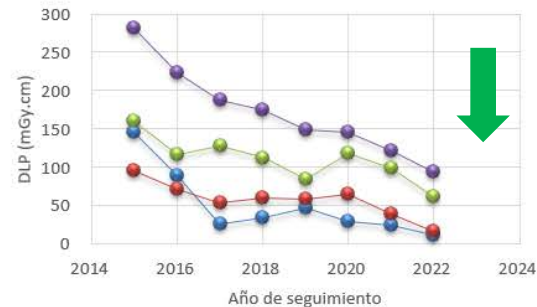
## CTDI Tórax



## SSDE Tórax



## DLP Tórax

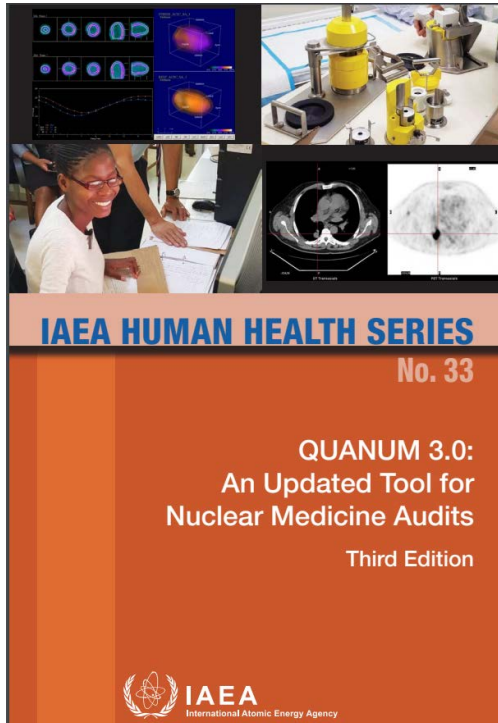




## 2b. Tools for Quality Improvement in Nuclear Medicine

### Colombian Experience

Implementation of QUANUM, Nuclear Medicine Service at  
the National Cancer Institute

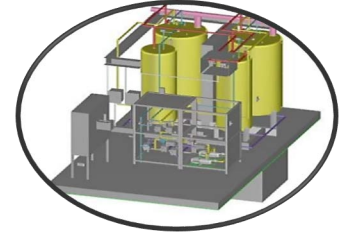


**PROJECT: “INNOVATION IN THE  
NUCLEAR MEDICINE SERVICE AS A  
DIFFERENTIATION STRATEGY TO  
IMPROVE THE COMPETITIVENESS  
OF THE NATIONAL CANCER  
INSTITUTE IN CANCER  
MANAGEMENT”**



**Instituto Nacional  
de Cancerología - ESE  
Colombia**  
Por el control del cáncer





2013

2019

2022

Two SPECT/CT, one PET/CT and Radiometabolic Therapies are performed With I-131, Lu-177 DOTA, Lu-177 PSMA y Ra-223.

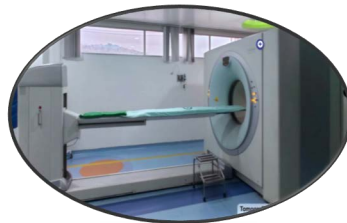
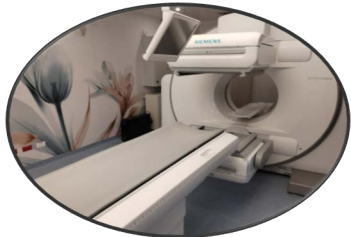
Four rooms for the administration of therapies with high activity and a specific environment for the administration of low-dose outpatient therapies

A system of dumping for waste from radiometabolic therapies

First visit of QUANUM

QUANUM Audit.  
Updates have been made and improvement plans implemented under the findings finding QUANUM version 3.0.

To date, there are 15 PCOS (Standardized Operating Procedures) for diagnosis and therapy as described in QUANUM version 3.0.





## 2c. Tools for Quality Improvement in Radiotherapy

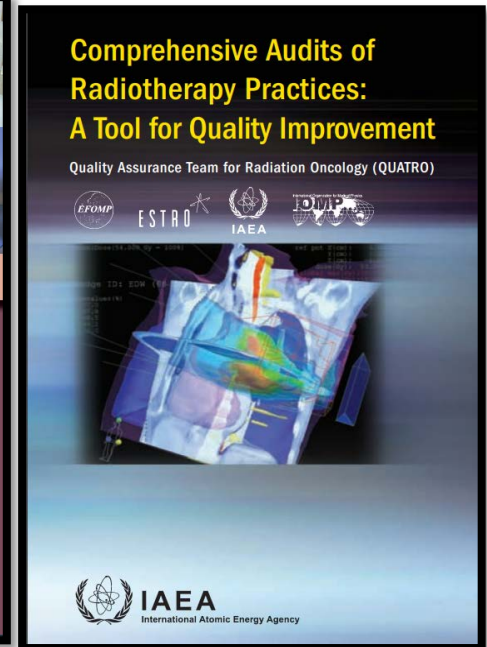
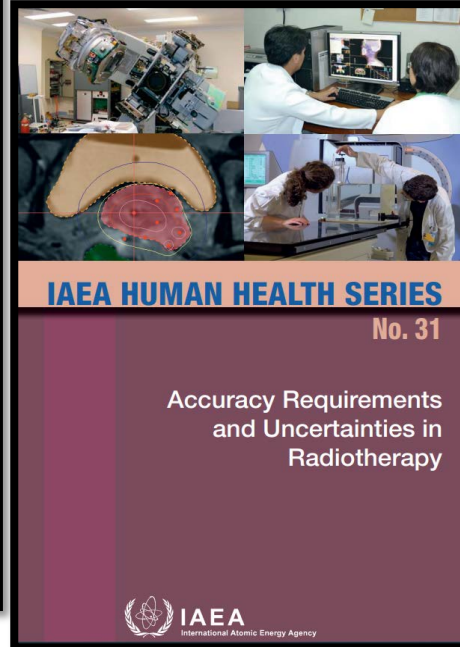
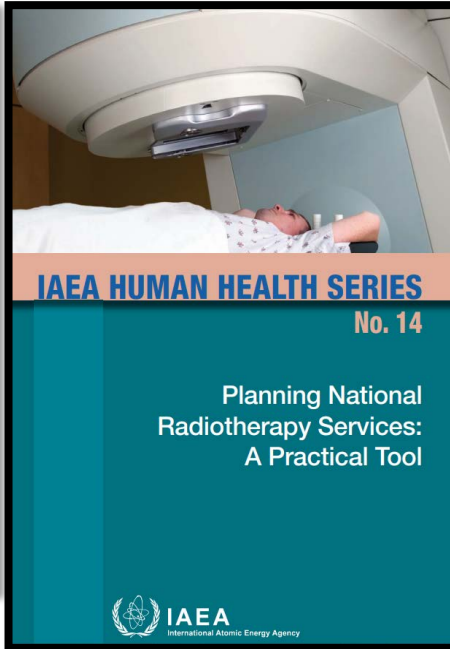
IAEA-TECDOC-1151

### Physics Aspects of the Quality Assurance in Radiotherapy: Quality Control Protocol



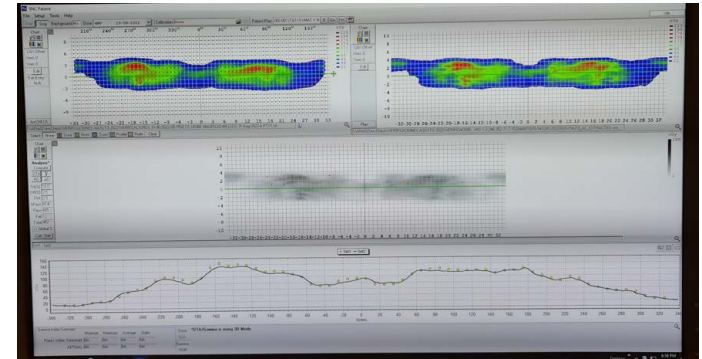
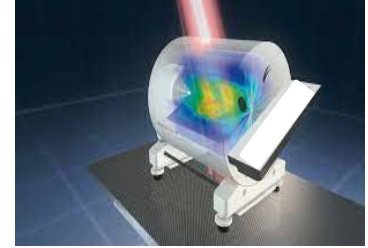
ORGANISMO INTERNACIONAL DE ENERGIA ATOMICA **OIEA**

Junio de 2000



Santa Fe Foundation  
Clinic of Bogotá







# 3. Some results of the IAEA Project, RLA6091 in Latin America



**IAEA**  
International Atomic Energy Agency  
*Atoms for Peace and Development*

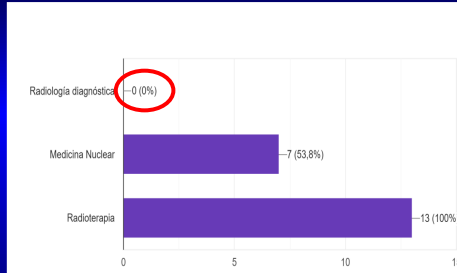
**Dr. Simone Kodlulovich Renha, Ph.D**

**Project RLA6091 “Enhancing Capacity Building of Medical Physicists to Improve Quality and Safety in Medical Practices”**

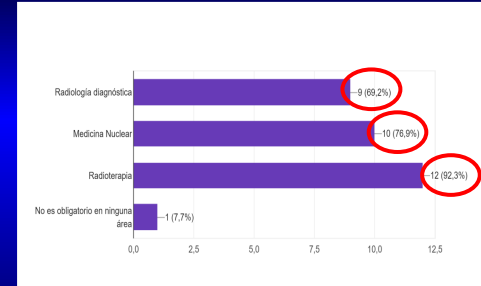


**Survey Developed in 13 Countries:**  
Argentina, Barbados, Bolivia, Chile, Colombia, Cuba, Honduras, Paraguay, Peru, Uruguay and Venezuela

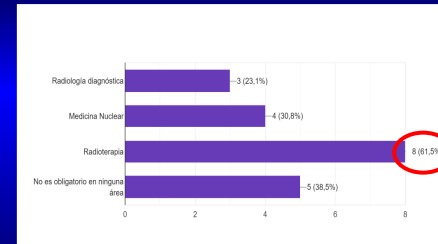
**In which areas the hiring of medical physicist is mandatory?**



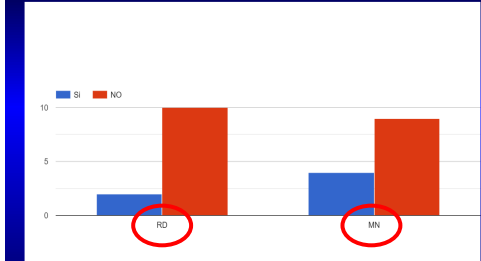
**Quality control program is mandatory in all services of**



**Patient dose assessment program is mandatory in all services of:**



**The establishment of DRL is mandatory in the services of:**





**Thank you for  
your attention!**

