First experience with a centralized regional clinical and dose management system

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Servicio Andaluz de Salud
7 high impact milestones

- Alternative to radiation diagnosis
- Priority to pediatric radiology replacement
- Regulatory regulations
- Reimaging CT
- Dose Task Group
- Dose management
- Research lines

Junta de Andalucía
Energy footprint project figures

- Biggest and populated region in Spain
  - 8.3 M habitants

- 68 new CTs
  - Installed in a 6 month period

- Teaching program for
  - 2500 radiographers
  - 400 Radiologist
  - 100 medical physicists

- Lung screening and Ictus diagnosis in every center

- 8y high disponibility contract
Energy footprint: Objectives

1. **Improve diagnostic capacity** and increase the efficiency in the realization and interpretation of CT images.

2. **Reduce Radiation Dose** received by patients ("Energy footprint" within the framework of the Patient Safety Strategy)

3. **Rationalize and standardize patient examination protocols** in accordance with the best available evidence and the comprehensive evidence
ADVANCED CENTER FOR IMAGE DIAGNOSIS (CADI, Centro Avanzado de Diagnóstico por Imagen)
ETAPAS DEL PROYECTO

1. Continuous management
2. Dose optimization
3. Standardization of practices and protocols
4. Work flows
5. Dose and protocols school
6. Integration and data collection
7. 68 CT installation in 6 months

- CADI
- COMITÉS LOCALES + CADI
- CADI + subgrupos
- COMITÉS LOCALES + CADI
- EQUIPO IT GEHC
- EQUIPO IT GEHC Y EQUIPOS IT SAS
- EQUIPO IT GEHC

continuous improvement
Main task groups:

Main task groups are established at regional level:

• **TG Protocols:**
  • Define the clinical protocols to build a corporate standard library to be installed on the equipment, based on the best scientific evidence available and existing in our centers (corporate benchmarking).

• **TG Dose management**
  • Define the configuration of the dose management platform and the procedure for optimizing the technical protocols.
  • Establish regional Dose Reference Levels as the main dose optimization tool.
Local task groups

28 local task groups:

- **multidisciplinary teams** (physicists, radiologists, radiographers, IT...)

- **Tasks**
  - Locally coordinate the implementation of clinical protocols
  - Work locally on the optimization of technical protocols
  - Analyze and assess local actions, indicators and incidents.
Results

Installations
• 63 CTs connected to CADI command center
• Real time data update (dose, productivity, clinical studies)

Dose management
• Evaluated the impact on the dose (in the most common protocols) of the technology change as a first step to obtain a picture of the current state and establish initial regional dose reference levels: mean dose reduction of 26% from baseline

Uptime
• Real time monitoring of CT uptime: actual value better than 99.5%

Training
• The initial online training program has been accredited and has already been carried out by about 1200 professionals, following an on-site training after the start-up of the CTs in the centers in which almost 400 professionals have participated. In addition, the project includes continuous training that extends to 8 years later
Conclusions

1. It is a unique improvement project in terms of the number of patients benefited and the professionals involved.

2. It involves a change in the way of working, sharing experience and benefiting from the best of our health system.

3. Analysis with Artificial Intelligence will allow us to easily detect areas for improvement.