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AN ANALYSIS OF IONIZING RADIATION MEDICAL EXAMINATIONS FREQUENCIES IN THE PERIOD 2017-2023

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INTRODUCTION

- The study follows the evolution of the number of medical exposures to ionizing radiation, depending on the type of examination, in the period 2017-2023, corresponding to the new system for recording and reporting medical exposures implemented at national level in 2017, following the transposition into national legislation of the norms for recording, centralizing and reporting information on the medical exposure of the population to ionizing radiation, as part of the implementation program in Romania of the European Directive 2013/59/EURATOM.

METHODOLOGY

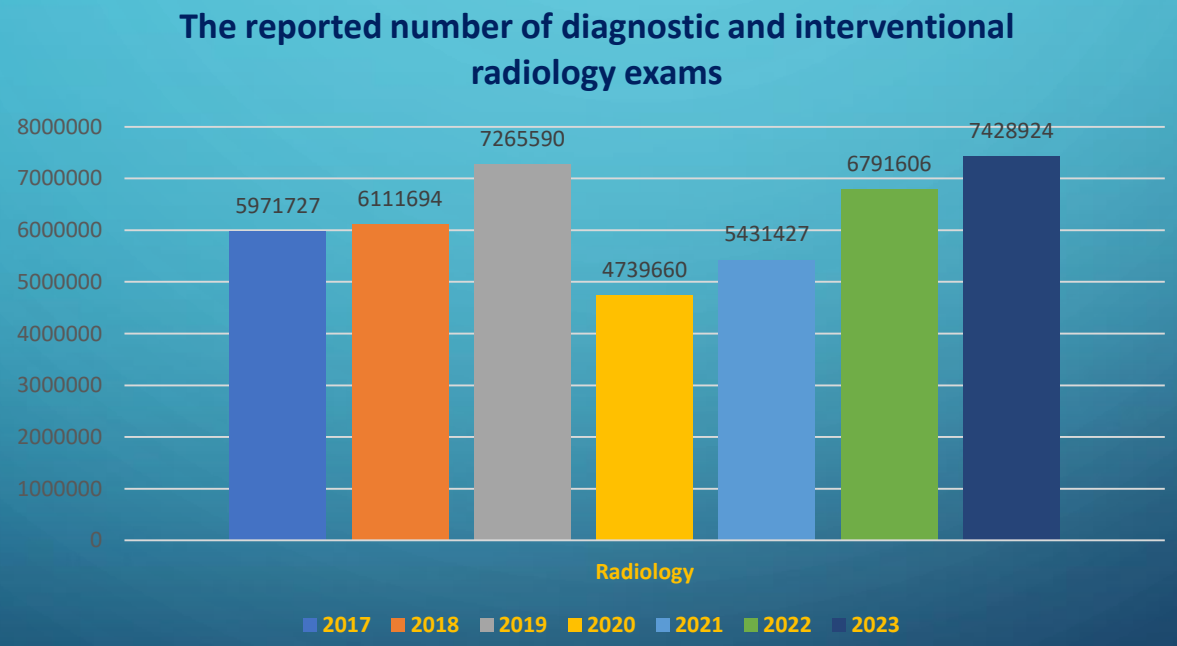
- The methodology, developed based on the above-mentioned norms, establishes the annual collection of the number of medical exposures performed depending on the type of diagnostic and interventional radiology procedure and diagnostic nuclear medicine procedure.

- For each radiological facility, data are collected by age and gender groups for each type of examination/procedure with ionizing radiation in accordance with the specific codings established at national level.

- The centralization of the collected data is initially carried out at the level of the hospital and subsequently at the county level, respecting the same specific codings, and the results at national level are centralized and managed by the National Institute of Public Health.

RESULTS

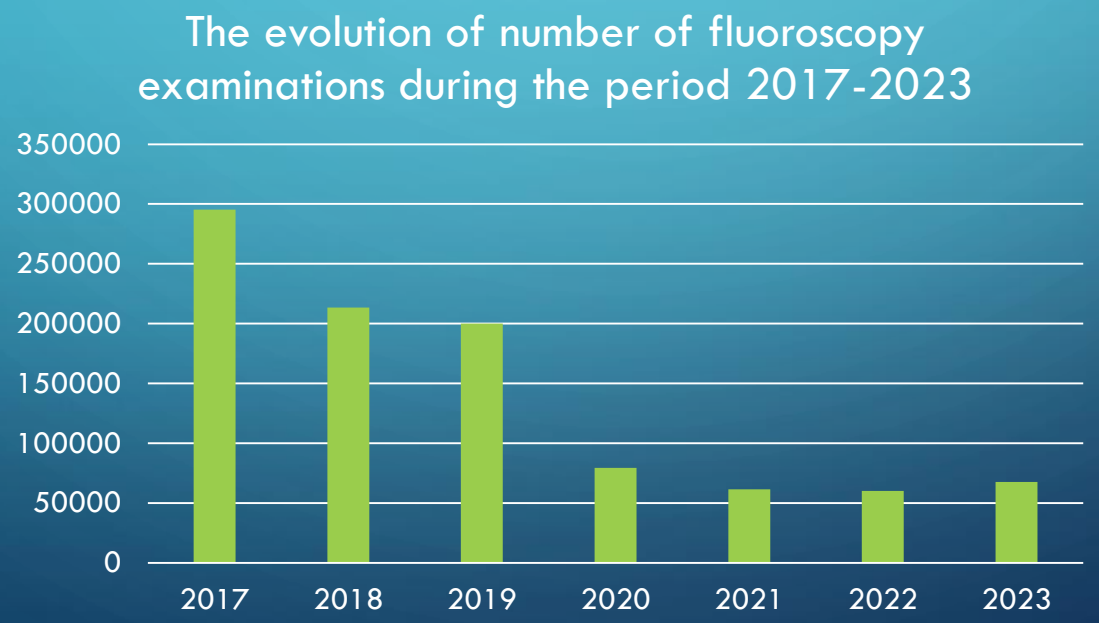
- The results obtained based on data reported and centralized at the national level during the period 2017-2023 indicate a constant increase in the number of procedures performed, except for the period 2020-2021 in which a strong decrease in all examinations performed was noted, the cause being obviously the Covid 19 pandemic.



RESULTS

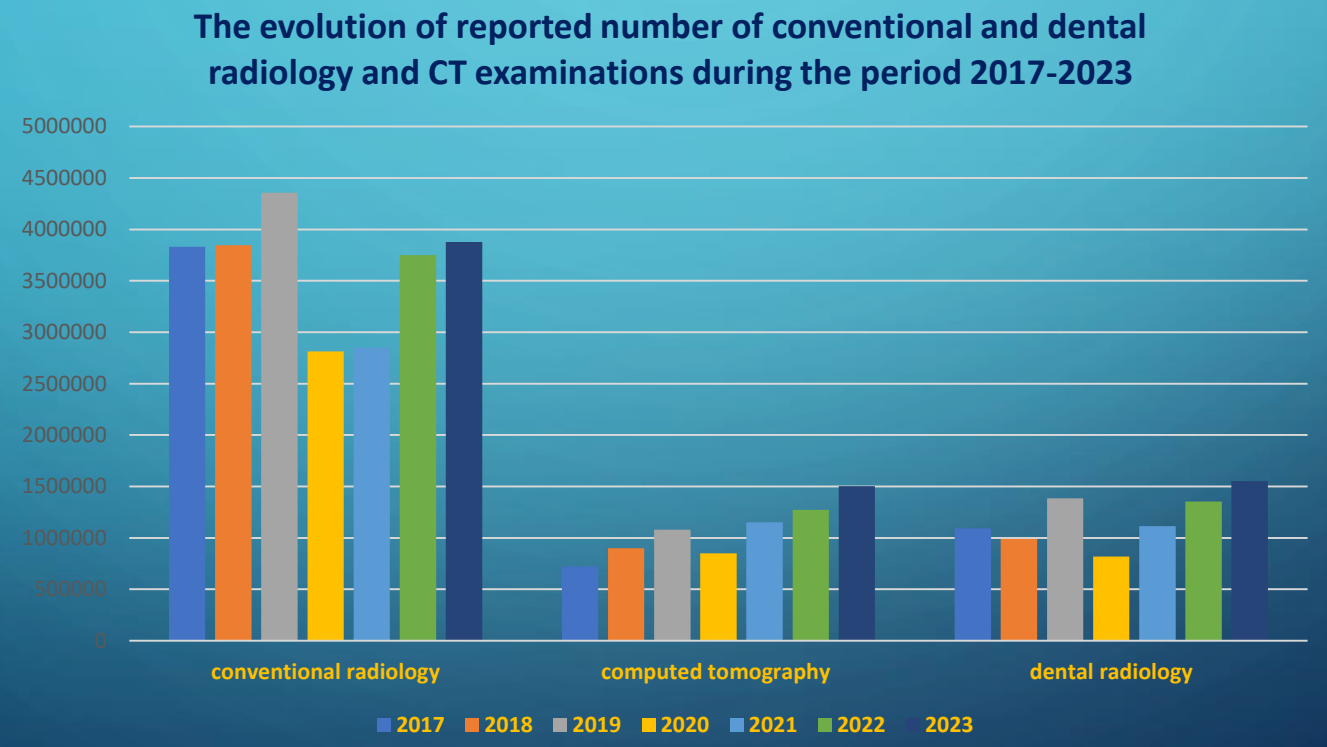
- Analyzing the entire study period, the results from 2019 stand out, noting an increase of almost 20%, compared to the previous year, in the number of all types of diagnostic and interventional radiology procedures.

- The exception for 2019 is fluoroscopy procedures, which maintain the strongly decreasing trend observed in 2018 and which is otherwise maintained throughout the entire period analyzed, with a decrease of approximately 75% in 2023 compared to 2017.



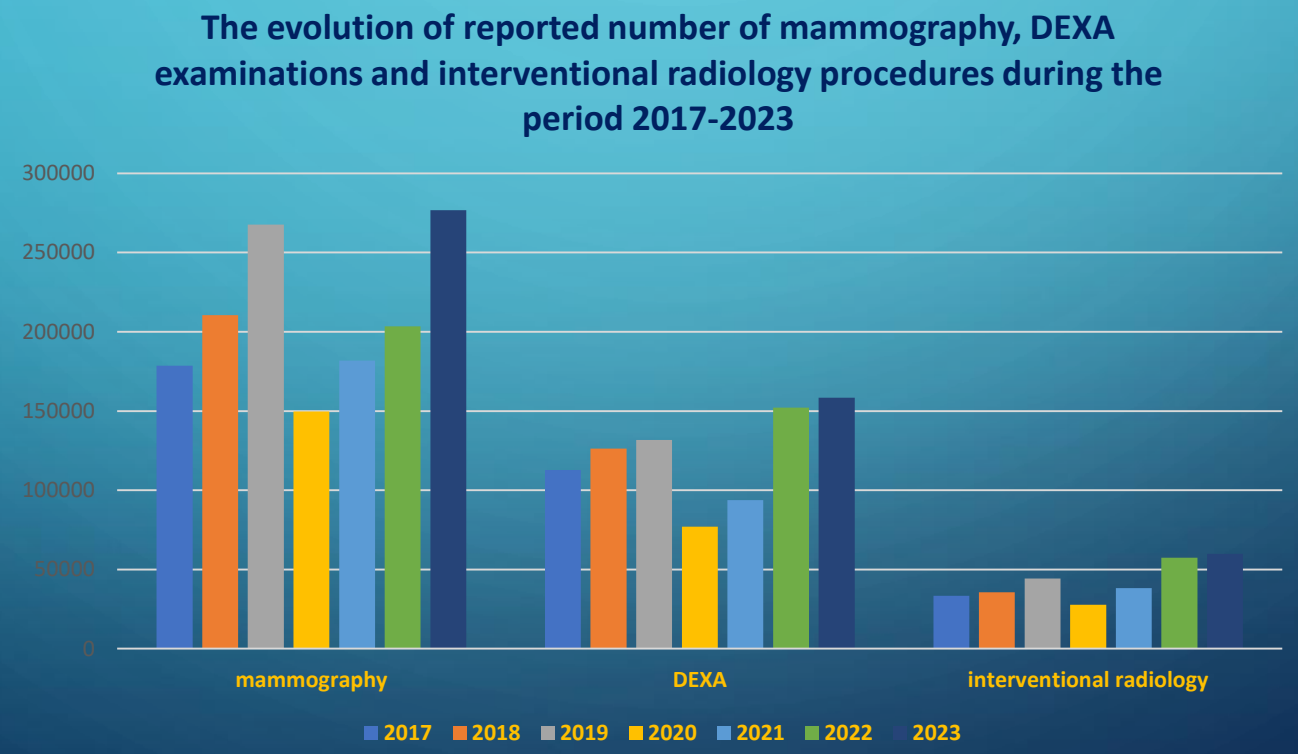
RESULTS

- In general, the number of conventional radiological examinations remains relatively constant, except for the period of the Covid 19 pandemic (2020-2021) when it decreased sharply, but it far exceeds the number of computed tomography procedures and dental radiology examinations, although the latter two have a strong upward trend.



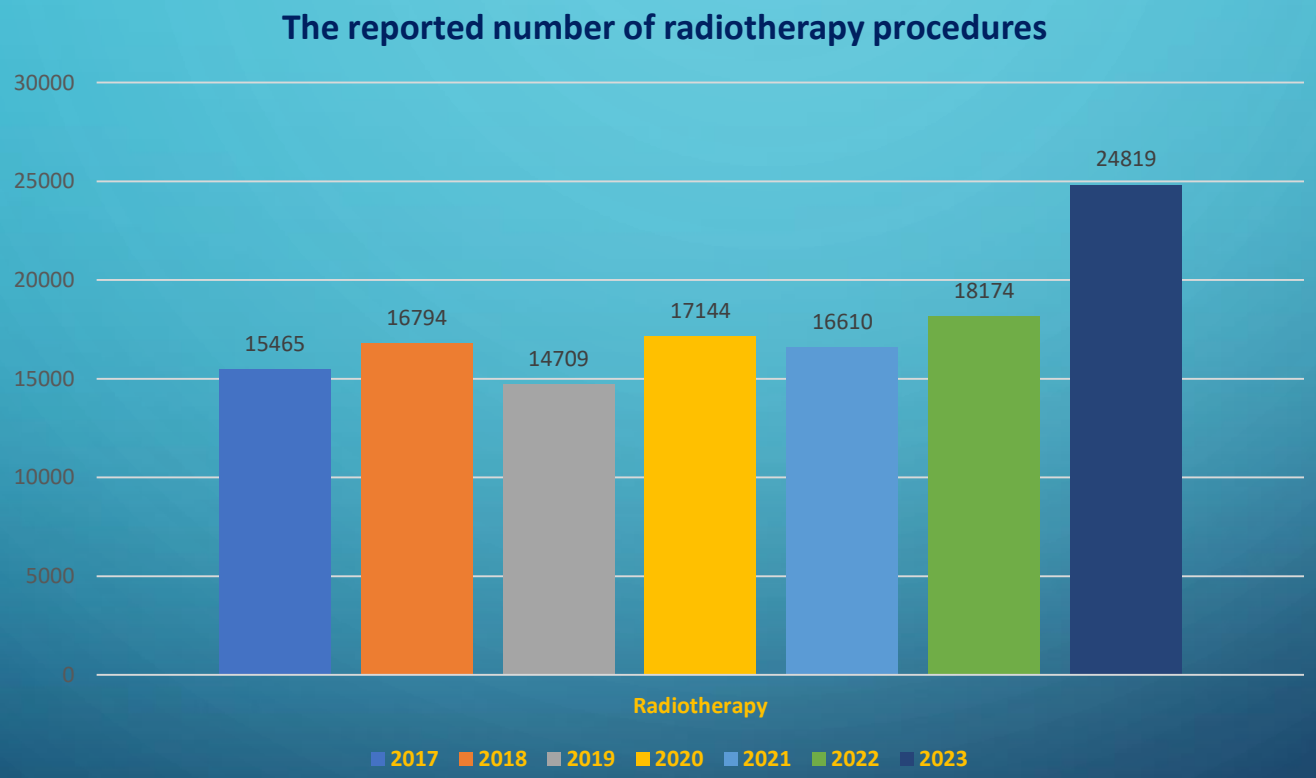
RESULTS

- In the case of mammography, the increasing trend observed in the period 2017-2019 is mirrored in the period 2021-2023, reaching in 2023 the values recorded before the Covid 19 pandemic period.
- Osteodensitometry and interventional radiology also maintain in 2022-2023 the trend observed in the period 2017-2019, with a slight but constant increase in the number of procedures.



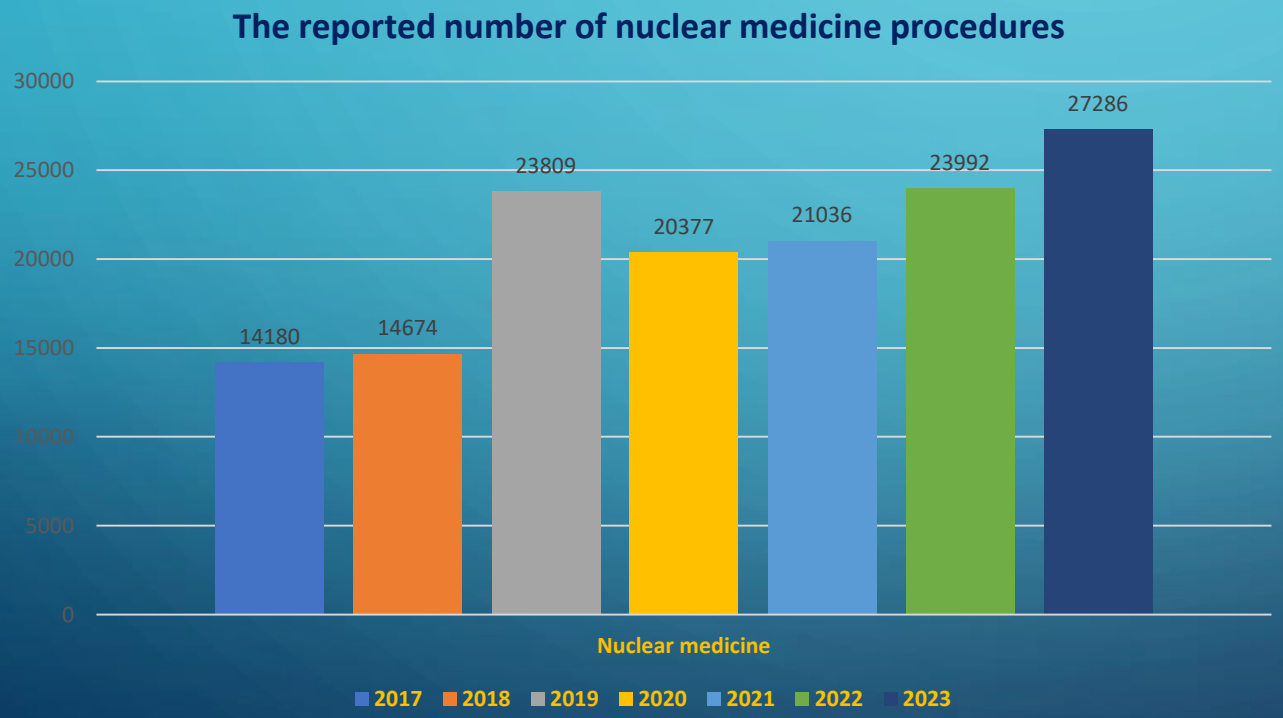
RESULTS

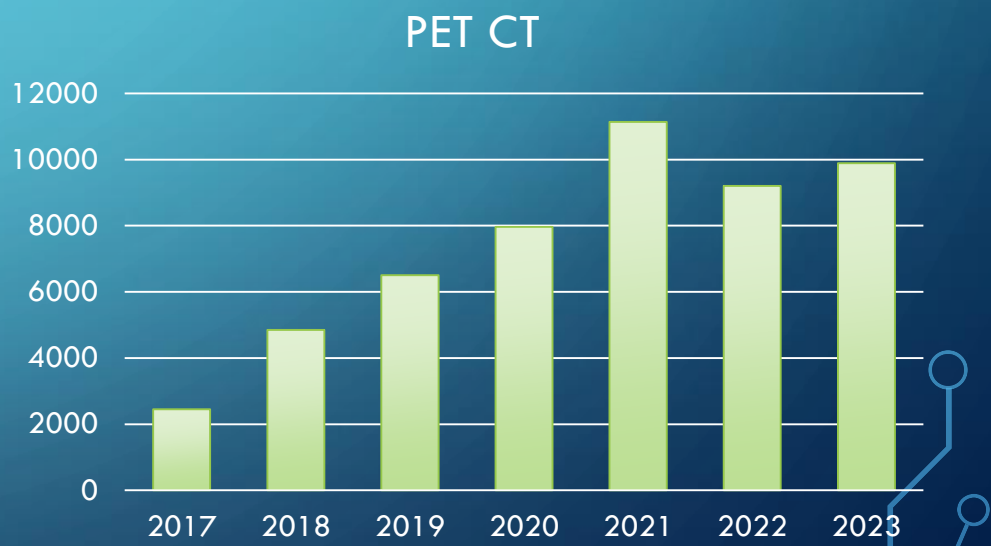
- For radiotherapy – generally, a very slightly increasing trend in the number of procedures performed, with a decrease in 2019, before the Covid 19 pandemic period, but with a strong increase in 2023



RESULTS

- The number of nuclear medicine procedures shows a 60% increase in 2019 compared to the previous year, this being due to the strong increase in the number of PET CT scans.
- During the Covid19 pandemic period, the number of conventional nuclear medicine procedures decreased, following the general trend, but the number of hybrid PET CT procedures continued to increase, a situation that was maintained after the pandemic period.





CONCLUSIONS

- The results obtained based on data reported and centralized at the national level during the period 2017-2023 indicate a constant increase in the number of procedures performed, except for the period 2020-2021.

- Given the continuous increase in the number of examinations, the process of justifying medical exposure for each individual patient, especially in the case of highly irradiating procedures such as computed tomography, is very important.

- Medical personnel involved in medical exposures must be aware of the risk to patients in the case of repeating highly irradiating diagnostic procedures at short intervals and analyze for each individual patient the risk-benefit ratio in the case of repeating medical exposures.

THANK YOU!