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Pediatric Radiation Exposure from Diagnostic Nuclear Medicine Examinations in Tehran

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Abstract:

Background/Objectives: As a part of a nationwide survey to estimate population exposure to radiation from diagnostic nuclear medicine in Iran, this paper presents the pediatric population radiation exposure due to nuclear medicine examinations in Tehran. **Patients and Methods:** The effective dose equivalent, HE, was used to calculate the collective effective dose in pediatric patients undergoing nuclear medicine procedures, and the corresponding data were obtained from thirty out of thirty seven active nuclear medicine departments in Tehran. **Results:** Annually about 5.26% of nuclear medicine examinations were performed on patients under 15 years of age in Tehran. The most frequent was renal examinations (38.2%), followed by thyroid (27.4%) and bone (26.7%). The annual collective HE for patients under 15 was 19.03 human-Sv, which contributed 3.96% to the collective HE for all patients. The contribution of renal, bone and thyroid examinations to the pediatric collective HE were 24.6%, 48.8% and 13.5% respectively. The mean effective dose equivalent per pediatric patient was 3.75 mSv. **Conclusion:** Among the three most frequent examinations, the bone with a relative frequency of 27.4% constituted 48.8% of the collective HE, which was the highest absorbed dose per examination. The mean effective dose per examination for patients younger than 15 years was 67.9% of the adults.

Keywords:

[pediatrics](#) , [diagnostic nuclear medicine](#) , [radiation exposure](#)

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